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THREE YEARS OF COMMERCIAL PLATFORMING

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Universal Oil Products Co., Chicago, Ill.

ABSTRACT

Since the announcement of the UOP Platforming process 3 years ago 27 units have been contracted for and, of these, 10 are presently in operation.

Among the many considerations involved in the development of this process, the foremost was the evolution of a stable catalyst which has high activity and selectivity and which is capable of effecting the desired hydrocarbon conversion reactions without the formation of carbon.

Having achieved this objective in terms of the Platforming catalyst, it was essential to utilize the material in a process arrangement designed to realize all of its potentialities. With simplicity as a guide, and with flexibility, efficiency, and economy as objectives, the reactor type and arrangement adapted for the Platforming process constituted a design which employs dense beds of catalyst with reheating of the process stream between reactors. Because of the simplicity of this design, the majority of the units require but one operator.

The Platforming process can be employed to reach into the high-octane-number region of 90 to 100 F-1, without TEL addition. Furthermore, operating conditions can be adjusted to permit variations in product volatility at any given octane number. The processing of high-sulfur cracked naphthas to accomplish simultaneous desulfurization, saturation, and octane-number improvement has been demonstrated.

Only three years have elapsed since the Platforming process first was offered to the refining industry by E. F. Nelson, vice president of Universal Oil Products Company, in San Antonio in April 1949. Negotiations for the first commercial unit were begun immediately after the announcement; and this unit at the Old Dutch Refining Company at Muskegon, Mich., was put on stream in late October of the same year. Since that time 26 additional units have been contracted for and, of those, 9 have been placed on stream.

The unprecedented acceptance of this new reforming process followed many years during which no new commercial catalytic reforming process had been offered to the industry. The successful commercialization of the Platforming process was followed by a general stimulation of interest in the reforming field, as evidenced by the subsequent announcement of a variety of other new reforming processes. In view of this widespread activity, it is believed that it would be of interest at this time to review the historical development, the performance of present operating units, and the probable developments of the platforming process.

HISTORICAL

For many years the upgrading of straight-run naphthas has been of major importance to refiners everywhere. The motor-fuel quality of the majority of virgin gasolines is so poor that they have to be improved prior to marketing. For a considerable period of time this upgrading was accomplished by simple blending—first with natural gasoline and thermally processed gasolines, and later, as quality standards demanded and process development permitted, with the higher blending-quality polymer and catalytically cracked gasolines. The thermal reforming of straight-run naphthas was practiced by many refiners in order to meet market demands. This type of processing always has resulted in the production of large quantities of fuel gas at the expense of salable gasoline products.

With the advent of catalytic chemistry as applied to petroleum refining, considerable effort was spent in developing catalysts and processes for improving the quality of straight-run and heavy thermal naphthas. The first catalytic reforming process put to any substantial use employed an alumina-molybdena catalyst for processing the naphtha in a cyclic regenerative operation, recycling a hydrogen-rich gas during the processing cycle, and redistilling the product to make a specification gasoline. The accompanying carbon formation, caused by poor catalyst selectivity, resulted in a loss in yield and, at the same time, required an expensive periodic regeneration of the catalyst.

The principal reaction in this particular process was the dehydrogenation of cyclohexane derivatives to aromatics, and only minor con-

version of alkylcyclopentanes and paraffins to aromatics took place. This process played an important role in the emergency refinery operations dictated by World War II; but, following the war, no other plants were constructed for this purpose, and some of the existing units were shut down because they could not be operated economically as a part of the normal peacetime refinery operations.

Platforming Catalyst Development

As a result of its many contacts throughout the industry, Universal Oil Products Company had long been aware of the ever-increasing need for a satisfactory solution to the problem of upgrading of low-quality naphthas. A substantial part of Universal's research and development program was directed toward the solution of this problem, and the Platforming process represents the culmination of this effort. The basic research philosophy in the development of this process was established by many considerations. The foremost of these was the evolution of a catalyst capable of effecting simultaneously and selectively the desired hydrocarbon conversion reactions. The development of a catalyst with these specific characteristics was deemed to be of paramount importance—with catalyst cost considerations being of lesser significance. Having developed such a catalyst, it was, of course, essential to utilize the material in a process designed specifically to realize all of its potentialities—with particular emphasis being placed on the concepts of FLEXIBILITY, EFFICIENCY, and ECONOMY.

Flexibility

A satisfactory catalytic reforming process must be sufficiently flexible to process any virgin or cracked naphtha feed which requires upgrading. Futhermore, the process must be able to make products useful either as motor fuels or as aviation-gasoline blending components. In order to attain this degree of flexibility, the hydrocarbon chemistry of the process should be readily controllable so that the various competing reactions may be balanced to meet the individual and possible changing requirements of each refiner. For example, in an area such as California, where refiners do not have access to low-cost high vapor-pressure natural-gasoline components, a product reformate meeting finished gasoline vapor-pressure and volatility specifications may be essential to economic refinery operations; whereas, in other areas of low-cost light blending components, a reformed product of low volatility may be essential to fit into the overall refinery balance.

In the design adopted for commercial Platforming units, the requirements of flexibility were met by providing for multi-stage heating between reactor beds, for variability in catalyst loading, flexibility in operating pressure and, in some cases, by providing for feed-stock pretreatment or recycle-gas purification. The success of these measures in obtaining the desired flexibility will be covered in more detail later.

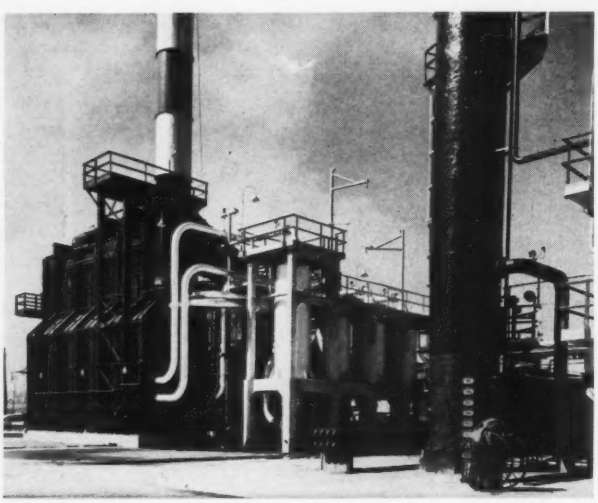
Efficiency

The efficiency of any catalytic process is established first and foremost by the efficiency of its catalyst. A suitable catalyst must possess stability, high activity, and high selectivity. The production of carbon, which by deposition on the catalyst reduces both its activity and selectivity must be avoided.

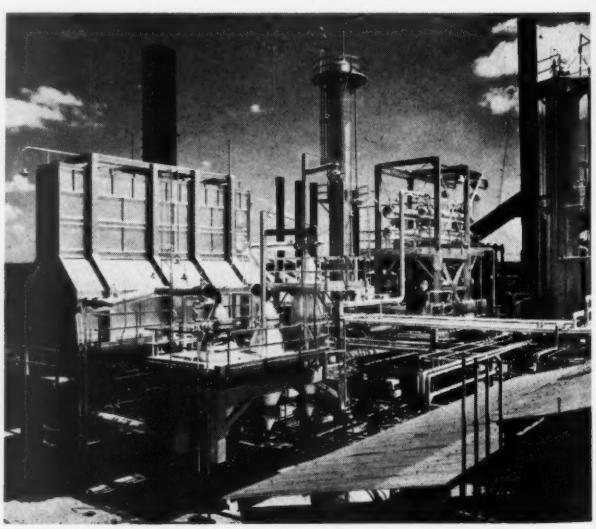
The efficiency of the catalyst itself must be such that its activity is high enough for operation at temperatures below those where detrimental thermal reactions take place. One of the salient features of the Platforming catalyst is that it meets the requirements of the ideal catalyst almost perfectly with respect to its high activity, high selectivity, and negligible carbonizing tendency throughout its preferred operating range.

A fundamental factor in the design of a catalytic process lies in the proper choice of reactor design to utilize the catalyst most effectively, minimize the undesirable side reactions, and realistically provide for the heat requirements inherent in the process. In the development of the Platforming process painstaking studies of, and experiments with, various possible reactor types were made before the final design was selected.

In order to minimize thermal effects in the high-temperature vapor zones of the reactors, the catalyst should be employed in consolidated



Eastern States UOP Platforming Unit, showing 4 reactors with heaters in left background. Figure 1.



Over-all view of Johnson Refinery Co. UOP Platforming Unit. Figure 2.

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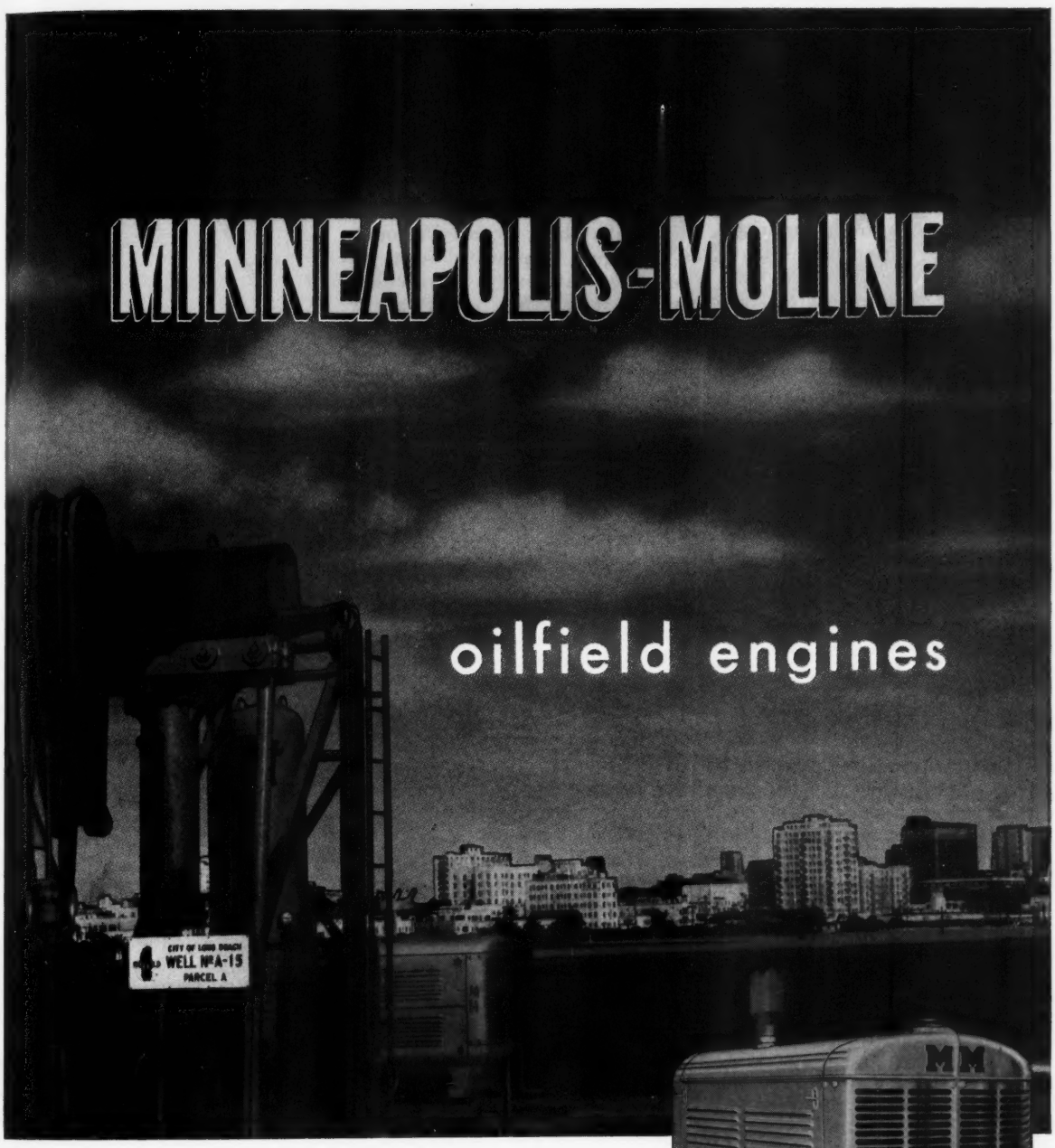

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dense beds having a low void space. By avoidance of such thermal effects the production of the so-called "polymer," which represents the very high-boiling residues produced during the reaction, is eliminated.

Reforming reactions are of such a nature that the yield-octane relationship deviates from linearity. This type of deviation means that, at a given severity, the highest yield is obtained by exposure of all portions of the feed to the same treatment. Hence, a further important consideration involving the efficiency of the ideal reforming process is that the actual processing should be done by a straight-line once-through flow through the reactors. Only by this type of flow can one be reasonably assured that all portions of the feed will receive the same treatment.

A further important consideration in the selection of the type of flow in the reactors is the adverse effect of mixing reaction products with the charge. Inasmuch as the principal desired reactions in reforming are equilibrium in nature, it is apparent that such mixing of reaction products with feed reduces the rate of these desired reactions — thus necessitating additional amounts of catalyst and reaction time. Such a condition is experienced particularly in fluidized operation, where extensive top-to-bottom mixing occurs, especially in large-scale units where the ratio of catalyst bed depth to diameter in the reactor is low. It should be noted that these considerations do not govern the choice of reactors in catalytic cracking, where the conversion severity is low and where decomposition reaction equilibria are of little consequence.

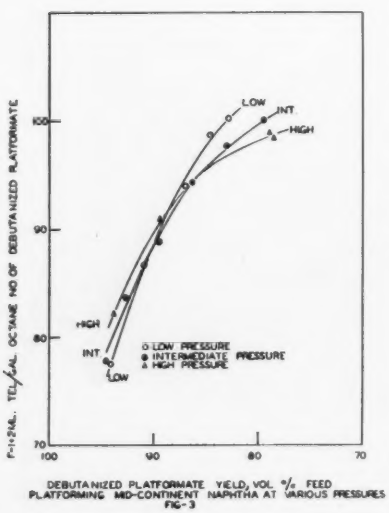

FIG-3

The efficiency of the ideal catalytic reforming process also involves the fundamental point of the endothermicity of the major reactions which take place. A large amount of heat must be provided so as to insure adequate extensive reaction. Thus it is not only important to utilize a catalyst with a high activity and, therefore, one which can be used at relatively low temperatures, but it is also essential to provide for an adequate supply of heat without overheating of the charge to the point of excessive thermal reaction. Multi-stage heating is, therefore, highly desirable because it tends to avoid high-temperature zones in all sections of the plant.

In view of the preceding considerations, it was decided to adopt a type of reactor design which would employ dense beds of catalyst, with reheating of the process stream between reactors.

Economy

The ideal catalytic reforming process, from the point of view of economics, would use a relatively simple method of processing in equipment which is easy to build, operate, and maintain; which would employ a catalyst with a long life; which would remain on stream for long periods; and which would make a high yield of a very stable high-octane-number and low-gum-content product.

It is believed that a process which employs either cyclic or continuous regeneration could not meet these requirements, because such a plant would involve a considerable amount of additional equipment which would have to be purchased, operated, and maintained. Furthermore, processes which employ regeneration run the continued risk of having either of the two operations upset the other.

The continuous operation of the ideal reforming process also implies that the elimination of the cyclic nature of operation materially reduces the operating personnel requirement.

A further consideration of the ideal catalytic reforming process indicates that, in addition to the long catalyst life, there should be no catalyst attrition—which actually means that there should be no catalyst movement. From the standpoint of both efficiency and economy, the ideal reforming process would be one which involves no gas recycle. However, if gas recycle is necessary for process considerations, it is reasonable that, in order to minimize operating costs, the operation preferably should be carried out at the highest pressure compatible with other process considerations. This not only reduces the size of compression equipment but, in addition, the compression power requirements are reduced approximately inversely as the square of the operating pressure. Thus, basically, the entire problem of efficiency and economy revolves itself around the maximum simplicity of construction and operation. The best indication of how well the Platforming process meets these requirements is found in the actual experience of operators of the commercial units.

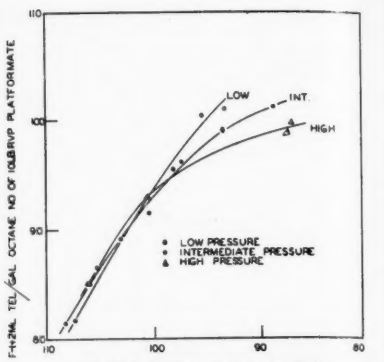

FIG-4

COMMERCIAL OPERATIONS

Now, after 31 months of plant-scale operation of the Platforming process, and with 10 units operating at this time at throughput rates ranging from 1,500 bbl. to 5,000 bbl. of charge per day, the soundness of the UOP Platforming process with respect to its simplicity of design and operation, and with regard to economic justification, has been more than amply proved. As of this time, some 7,265,000 bbl. have been processed in commercial operating units to yield products which vary from high-octane-number motor-fuel blending component, aviation-gasoline base stock, and special high aromatic-content fractions for use as special solvents and as chemicals, as

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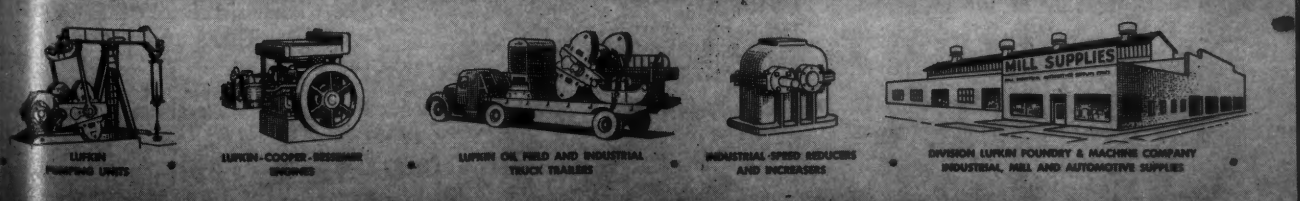

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well as for rich-mixture improvement in the blending of aviation gasolines. A list of 27 Platforming units contracted for and in operation is shown in Table 1. Ten of these units are now on stream.

Through the experience gained in the operation of presently operating units, many design improvements have been made so as to insure smooth performance; and the effect of operating variables on product quality have been thoroughly studied to confirm earlier pilot-plant work which led the way for the commercialization of the process. With the economics of the process as one of the basic considerations, many advancements have been made in the operation of existing units so as to achieve the goal of maximum yield of desired quality product.

The basic simplicity of the process and its ease of operation are being demonstrated by the high-on-stream efficiency which has been obtained by the units now in operation. Two units started in June and July of 1951 have operated continuously without shutdown since the date of startup, and the same performance is being fulfilled in other units which have started since that time. The high on-stream efficiency obtained in operating units is, in fact, an index of the soundness of placing emphasis on simplicity in design. It also reflects the ruggedness of the catalyst, which has continuously performed under varying conditions of operation, while both widely varying straight-run stocks and mixtures of cracked and straight-run gasolines have been processed.

Actual experience thus far has indicated that the catalyst can be expected to remain in continuous service for periods of at least six months. On one occasion catalyst service reached a total of 92.5 bbl. per pound. corresponding to a 10-month service period. Several plants have now processed in excess of 50 bbl. of feed per pound of catalyst, and these units are still operating satisfactorily. There is every indication that generally higher catalyst service records will be reached in future operations.

One interesting experience which affected catalyst life in the early operation of some of the units listed in Table 1 was the discovery that a catalyst poison is present in certain straight-run naphthas. The occurrence of this poison in straight-run naphthas is variable, depending to a large degree on the particular source of crude oil, as well as on the method of processing of the crude oil. When this catalyst poison had been encountered commercially, new analytical techniques were perfected capable of detecting the extremely low concentrations. Protective methods were promptly developed and put into full plant use so as to prevent this poison from entering the reactors and thus shortening catalyst life.

It has been recognized, as a result of laboratory and pilot-plant-scale experiments, that the presence of large quantities of hydrogen sulfide in the reaction zone selectively suppresses the activity of the catalyst with regard to particular types of reaction. Above a certain threshold sulfur content, the yield of Platformate of a given octane number is improved by facilities for the removal of hydrogen sulfide from the recycle gas. Two of the commercial units now in operation have such facilities in service.

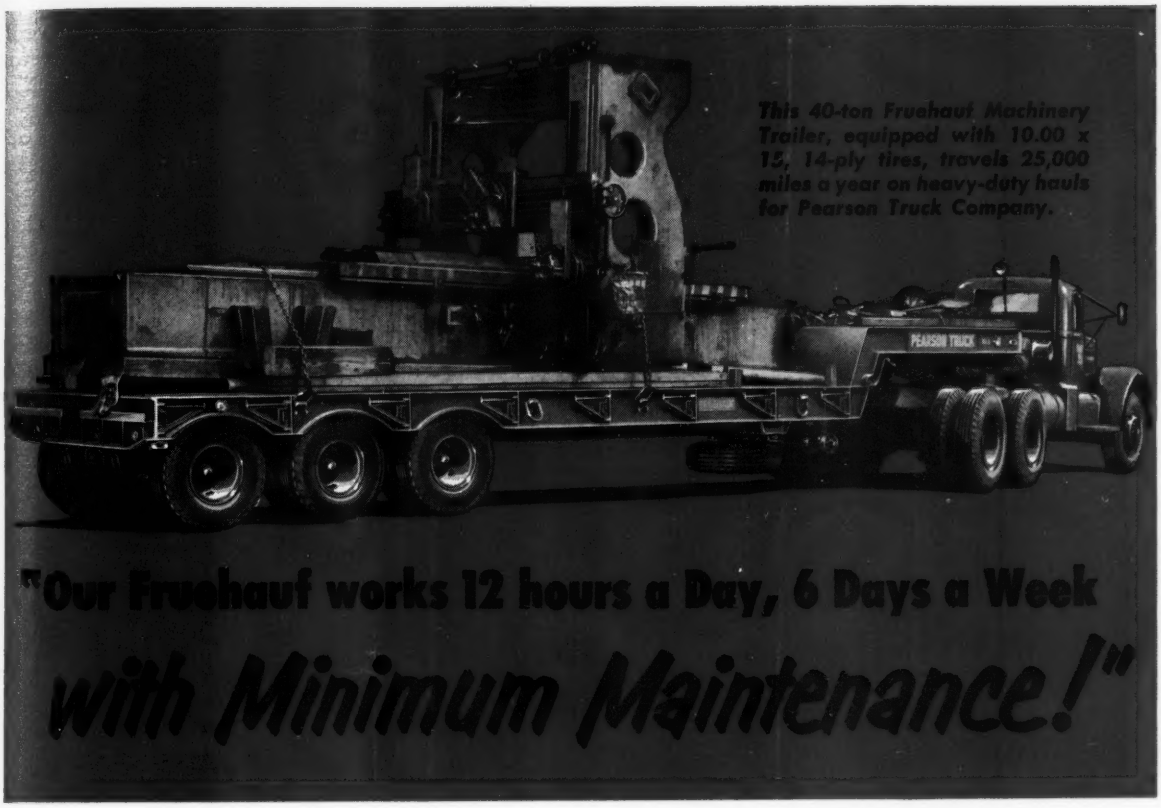
Although the catalyst in some plants has suffered because of accumulation of catalyst poisons before the proper correction means were applied, in no case has the used catalyst been deactivated seriously by carbon—thus re-affirming the self-regenerating character of this highly selective catalyst.

As more units have been placed in operation, and as opportunity has been had to evaluate overall experience with the original choice of the multiple fixed-bed catalyst reactor with provision for interbed heating of the reactants, it has become clearly apparent that this was a wise choice. In addition to the simplicity of design, there have been many process advantages which have resulted in the type of flexibility in operation which permits getting the best results under all conditions. As indicated in Fig. 1, which is a photograph of a typical 4,500-bbl-per-day

TABLE 1

PLATFORMING UNITS IN OPERATION

Name of Company	Location	Design Capacity (Barrels Per Day)
Old Dutch Refining Co.	Muskegon, Mich.	1,500
Shell Oil Co.	Wood River, Ill.	3,400
Kendall Refining Co.	Bradford, Pa.	1,500
Bell Oil and Gas Co.	Grandfield, Okla.	1,500
Johnson Oil Refining Co.	Cleveland, Okla.	1,843
Midwest Refineries, Inc.	Alma, Mich.	1,500
Premier Petroleum Co.	Fort Worth, Texas	1,500
Aurora Gasoline Co.	Detroit, Mich.	4,500
Taylor Refining Co.	Port Isabel, Texas	4,000
Eastern States Petroleum Co., Inc.	Houston, Texas	4,500
PLATFORMING UNITS UNDER DESIGN AND CONSTRUCTION		
Shell Oil Co.	Houston, Texas	16,000
Bitumen and Oil Refineries, Ltd.	Matraville, NSW, Australia	1,500
Petroleum Specialties, Inc.	Flat Rock, Mich.	900
Anglo-Iranian Oil Co., Ltd.	Llandarcy, Wales	6,000
Canadian Oil Refineries, Ltd.	Froomfield, Ont., Canada	3,800
Standard Oil Co. of California	El Segundo, Calif.	10,000
Skelly Oil Co.	Longview, Texas	1,850
Elk Refining Co.	Falling Rock, W. Va.	1,500
Cosden Petroleum Co.	Big Spring, Texas	4,500
Atlas Processing Co.	Shreveport, La.	4,400
Roosevelt Oil and Refining Co.	Mt. Pleasant, Mich.	1,800
Great Southern Chemical Corp.	Corpus Christi, Texas	3,500
Wilcox Oil Co.	Bristow, Okla.	1,500
Sun Oil Co.	Toledo, Ohio	10,000
Continental Oil Co.	Lake Charles, La.	6,000
Republic Oil Refining Co.	Texas City, Texas	5,500
R. J. Oil and Refining Co.	Princeton, Ind.	500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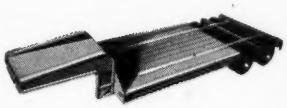
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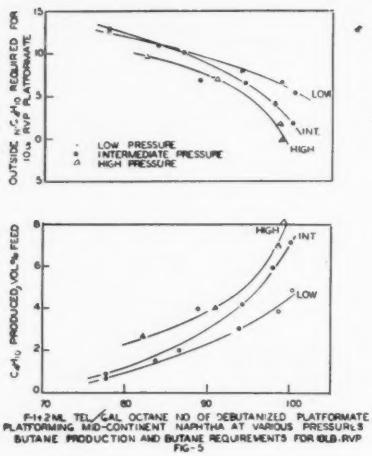


F-1+2 ML TEL/GAL OCTANE NO OF DEBUTANIZED PLATFORMATE
PLATFORMING MID-CONTINENT NAPHTHA AT VARIOUS PRESSURES
BUTANE PRODUCTION AND BUTANE REQUIREMENTS FOR 10LB RVP
FIG-5

unit, the catalyst reactors and heaters constitute essentially a single compact unit. The combined stream of naphtha feed and recycle gas flow through heating coils into a reactor which contains catalyst, and back through reheating coils before it enters the next reactor.

In small units it has been found advantageous to enclose all of the various heating coils within a single heater structure, as shown in Fig. 2.

There are many process advantages in having flexibility which permits adjustment of the temperature gradient across the reaction zone in such a manner that the greatest reaction severity will be imposed on whichever reactor is desired. A fixed-bed type of catalyst reactor was found to have the additional advantage that the fore part of the bed tends to protect the latter sections from impurities brought in with the feed.

In processing the widely different types of stocks which have been made available to Platforming units, it is possible to alter processing conditions to meet product quality requirements at the optimum conditions for maximum yield-octane results.

Several operating plants on occasion have processed stocks which fluctuated from 25 to 45 per cent by volume of naphthenes in a single day. In spite of large resultant heat-of-reaction changes, it has been possible to control the temperature in the individual reactors so as to obtain maximum conversion to aromatics, as well as to obtain the degree of hydrocracking required. Inasmuch as the reaction which converts naphthenes to aromatics is highly endothermic, and as the bulk of the dehydrogenation reaction takes place in the first reactor, a rather substantial drop in temperature occurs in this reactor. With the multiple-reactor design, the temperature of the reactants can be restored to any desired level after the reactants have left the first reactor without the necessity of overheating the charge stream for the purpose of introducing the entire heat of reaction into the feed stream, such as would be the case if the unit were designed with only one reactor.

To illustrate the flexibility of the process, in one case it was possible to change from motor-fuel operation which used a charging stock of 180- to 380-F naphtha for the production of leaded gasoline with an octane number of 93 F-1 to an operation which used as charging stock a heptane cut with 60 per cent C_7 naphthenes for the production of a high-aromatic-content toluene fraction. This shift in operation was made without any interruption, i.e., merely by changing the feed stocks and by suitably modifying the plant operating conditions.

Of the 10 units presently operating, 8 are producing motor fuel the quality of which ranges from leaded products of 90 to 96.5 octane number. One is processing 3,500 bbl. per stream day of a C_7 to C_8 fraction for the production of toluene and xylenes. Another is being operated for the production of 3,200 bbl. per stream day of an aviation-gasoline blending stock, with F-3 and F-4 performance numbers of 95 and 115, respectively, when the TEL addition is 4.6 ml per gal. This unit is also separating a C_6 cut from the Platformate which is being charged to a UOP Udex extraction unit for the production of high-purity benzene.

At this time 17 additional units are being constructed. Some of these units are to be operated exclusively for the production of benzene, toluene, and xylene.

The installation of a Platforming unit in any refinery requires very little change in the overall utility and manpower requirements. The heat requirements for a motor-fuel Platforming unit are met completely by the combination of heat exchange and utilization of the "make" gas for firing the process heaters. The four pumps and compressors required for the unit can be driven by electric motors whenever steam is not available. The feed prefractionation and product stabilizer are reboiled by the use of hot process streams.

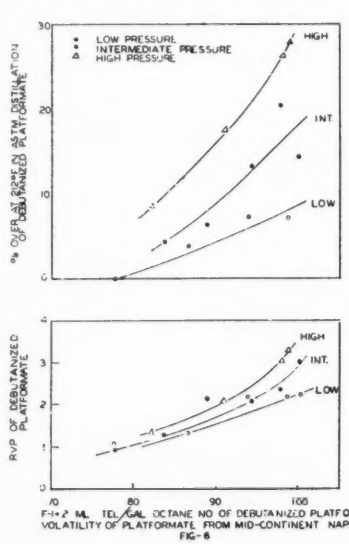
The typical utility requirement for a unit which charges 1,500 bbl. per stream day to the reactors is shown in Table 2.

Average operating cost for such a unit is shown in Table 3. Because of the simplicity of the design and operation of the unit, the majority of the units are operated with one operator only. On some of the units, which are equipped with additional product fractionation towers for the separation of aromatic cuts or aviation gasoline, as well as recycle gas-treating units, two men, an operator, and a helper are used.

Two independent, complete catalyst-manufacturing units are presently in operation, so that catalyst can be supplied promptly regardless of the refiner's geographical location or local shipping difficulties.

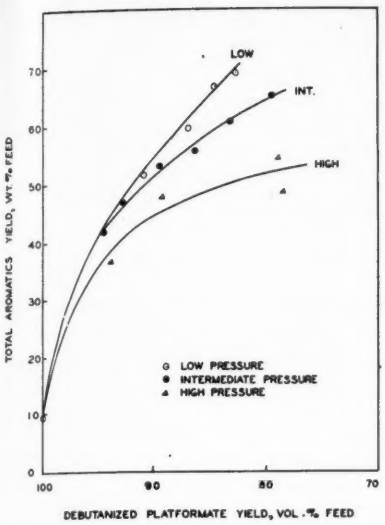
FUTURE HORIZONS

Published surveys indicate that the motoring public is currently using premium gasolines, with an aver-



F-1+2 ML TEL/GAL OCTANE NO OF DEBUTANIZED PLATFORMATE
VOLATILITY OF PLATFORMATE FROM MID-CONTINENT NAPHTHA
FIG-6

age F-1 octane number of about 90, which contain 1¾ ml tetraethyllead per gallon. At the same time the regular gasolines have an average F-1 octane number of 83, with about 1⅓ ml TEL per gal. Because of allocations, these lead concentrations are distinctly less than they were during the latter half of 1951, but the oc-



AROMATICS FROM PLATFORMING
MID-CONTINENT NAPHTHA
FIG. 7

tane numbers are slightly higher than they were in that same period. This trend suggests that refiners are using greater proportions of the higher octane-number components in their gasoline blends. Other than alkylates—which are being reserved for aviation gasolines—and olefin polymers, high octane-number gasolines of substantial production are only obtainable by catalytic cracking or catalytic reforming. A survey of refinery projects completed in 1951 [1a] indicates that 175,000 bbl. per day of catalytic cracking and about 20,000 bbl. per day of Platforming have been added to refining facilities as new equipment. Increases during the present year are expected to be even higher.

With presently available commercial catalysts, the F-1 leaded octane number of catalytically cracked gasolines usually falls in the range of 95 to 98. This range of octane numbers can be raised only slightly by economically permissible changes in operating conditions. In order to obtain gasoline blending components with octane numbers higher than this range, the refiner must turn to catalytic reforming for quantity production. The Platforming process is available as a commercially proved refining tool for reaching into these upper octane-number strata.

High Octane Numbers from Mid Continent Naphtha

To illustrate what can be achieved with Platforming in the manner of high octane numbers and product-distribution flexibility, three series of pilot-plant tests were made when a Mid-Continent naphtha with the properties shown in Table 4 was processed. These tests were made in a unit equipped with plant-gas recycling facilities and with a stabilizer which produced a continuous stream of debutanized Platformate.

Yield-octane curves representing these tests are shown, on a debutanized basis, in Fig. 3 for 3 operating pressure levels. These observed octane numbers and yields have been adjusted to a 10-lb-RVP basis and plotted in Fig. 4, using the amounts of outside butane indicated in Fig. 5 to supplement the butanes produced by the process. In order to show octane numbers at a lead level comparable with that found in today's premium gasolines, the octane numbers which appear plotted in the various charts are all at TEL concentrations of 2 ml per gal. This is a more realistic basis for presenting octane numbers than either the unleaded or the 3-ml-TEL-per-gal level. At leaded F-1 octane-number levels up to about 95 on either a debutanized or a 10-lb-RVP basis, there is only a small effect of operating pressure on the Platformate yield. However, at octane numbers above this value, there is an increasing yield advantage for lower-pressure operation as the octane-number scale is ascended.

TABLE 2
Platforming Utility Requirements

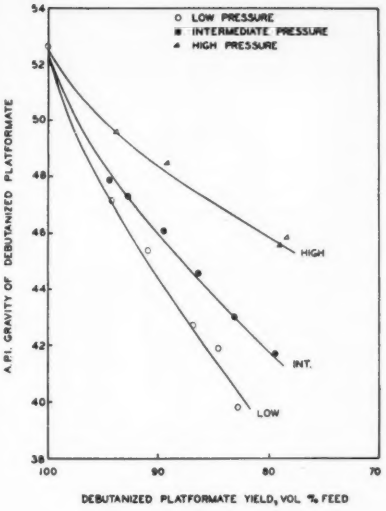
1,500-Bbl-Per-Day Reactor Feed	
Steam for small pumps, pounds per hours	650
Electric power for charge pump, compressors, and lights, kilowatts	240
Fuel gas,* 10^6 Btu per hour	25
Cooling water, gallons per minute	825

*Fuel-gas requirements totally supplied from process-gas make.

TABLE 3
Operating Costs for 1,500-Bbl-Per-Stream-Day

Platforming Unit

	Cents Per Barrel of Feed
Operating labor	4.6
Utilities	6.6
Catalyst	7.0
Laboratory	0.4
Royalty	7.5
Maintenance	4.3
Taxes and insurance	3.6
	34.0



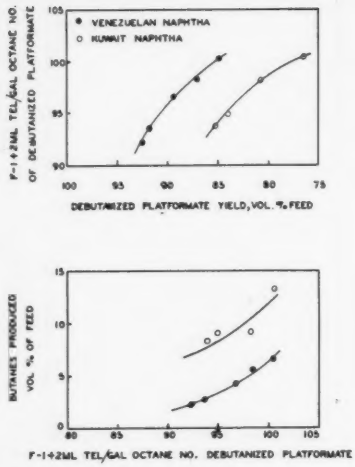
A.P.I. GRAVITY OF PLATFORMATES
FROM MID-CONTINENT NAPHTHA
FIG. 8

That the processing pressure is one of the effective tools for controlling volatility is shown in Figs. 5 and 6, where it is noted that, at higher pressure levels, **a,** the Reid vapor pressure of the debutanized liquid; **b,** the percentage distilled at 212 F; and, **c** the C_4 yield are all greater at a given octane number. In order to bring a Platformate produced at low pressures to a 10-lb-RVP level, somewhat more outside butane is required than at higher pressures because the debutanized liquid has a lower vapor pressure in the first place (Fig. 6), and also because there is lower butane production by the process at the lower operating pressure.

There is a greater yield of aromatics at the lower operating pressures, as indicated in Fig. 7. From a hydrocarbon-type analysis of the Mid-Continent feed stock, a total potential aromatic yield of about 55 per cent by weight could be expected from complete dehydrogenation of all of the naphthelenes, added to the native aromatics originally in the feed stock. It is evident, from Fig. 7, that a considerable amount of aromatics is formed by the dehydrocyclization of paraffins.

Because Platformates produced at low pressures have low front-end

[a] Figure refers to REFERENCE


VENEZUELAN NAPHTHA
KUWAIT NAPHTHA
F-1+2ML TEL/GAL OCTANE NO. OF DEBUTANIZED PLATFORMATE
DEBUTANIZED PLATFORMATE YIELD, VOL. % FEED
BUTANES PRODUCED VOL. % OF FEED
F-1+2ML TEL/GAL OCTANE NO. DEBUTANIZED PLATFORMATE

PLATFORMATE OF VENEZUELAN AND KUWAIT NAPHTHAS
FIG. 9

volatility, as well as high concentrations of aromatics, their gravities are low, as shown in Fig. 8. Thus, at a given octane number up to about 95 F-1 with 2 ml TEL per gal.; the volumetric debutanized liquid yields at the various pressures are about the same because of density effects, even though the light hydrocarbon yields are less at the low pressures. Most of the commercial Platformers now in operation are using the higher pressures because the cost of recycling gas is somewhat less than at low pressures and, furthermore, there is no distinct yield advantage at reduced pressures when the Platformate F-1 leaded octane numbers are in the current range of 90 to 95.

The value of butanes in refineries ranges from that of fuel, where they are abundant, to that of gasoline in those cases where the supply is short. With Platforming, the refiner can, by the selection of suitable operating conditions, influence the volatility of reformed products. Items such as butane production by the process, the vapor pressure, the distillation characteristics of the debutanized liquid, and outside butanes required for a desired final vapor pressure are all included in the general term "volatility." The charts in the illustrations indicate that pressure is one of the variables which permit adjustments of product volatility.

To indicate a range of yield-octane relationships encountered in Platforming, Fig. 9 was prepared from data obtained at moderately high pressure from the processing of a paraffinic Kuwait naphtha and a Venezuelan naphtha with a low paraffin content. Inspections of these 2 feed stocks are shown in Table 4. Platformate F-1 octane numbers in excess of 100, with 2 ml TEL per gal, are obtainable with debutanized liquid yields of 85 per cent from the Venezuelan naphtha, which contains a large amount of native ring compounds. Because there are fewer natural ring compounds in the Kuwait naphtha, octane numbers must be obtained by paraffin conversion; and these reactions result in higher light-hydrocarbon yields at a given octane-number level. Thus, at a given octane-number level, the debutanized liquid yield is less, but the butane yield is greater from the Kuwait naphtha, as shown in Fig. 9. Results from the Mid-Continent naphtha previously discussed fall in between those from the Venezuelan and Kuwait stocks.

Platforming Cracked Gasoline

Platforming has been applied to the problem of refining high-sulfur

(Continued on Page 32)

TABLE 4
Properties of Feed Stocks

	Mid-Continent	Venezuelan	Kuwait
Gravity, deg API	52.6	48.3	54.5
Sulfur, per cent by weight	0.04	0.022	0.064
Paraffins, per cent by volume	45.8	32.3	66.3
ASTM Octane No.			
F-1, unleaded	32.4	52.2	32.4
F-1 plus 3 ml TEL per gal	56.4	73.6	55.2
ASTM Distillation, Deg F:			
Initial boiling point	230	272	272
10-per-cent point	255	284	282
30-per-cent point	276	292	290
50-per-cent point	308	302	300
70-per-cent point	344	316	316
90-per-cent point	372	338	342
End point	397	378	378
UOP K factor	11.90	11.61	12.01

TABLE 5
Platforming Blend of Santa Maria Valley Coker Distillate and Los Angeles Basin Straight-run Naphtha

Platforming Yields	
Dry gas, per cent by weight	7.4
C_4H_{10}, per cent by volume	4.0
10-lb-RVP Platformate, per cent by volume	99.2
Outside butane, per cent by volume	6.3
ASTM Octane No. of 10-Lb-RVP Platformate	
F-1, unleaded	86.4
F-1 plus 2 ml TEL per gal	95.2

Inspections	Feed	Debutanized Platformate
Gravity, deg API	52.2	52.1
Reid vapor pressure, lb	..	2.8
Sulfur, per cent by weight	1.75	0.0007
Bromine No.	50	1.8
ASTM Octane No.		
F-1, unleaded	68.3	85.0
F-1 plus 2 ml TEL per gal	74.6	94.2
ASTM Distillation, Deg F:		
Initial boiling point	166	130
10-per-cent point	217	175
30-per-cent point	247	212
50-per-cent point	272	250
70-per-cent point	298	288
90-per-cent point	330	334
End point	360	394
ASTM gum, mg per 100 ml	...	0.6

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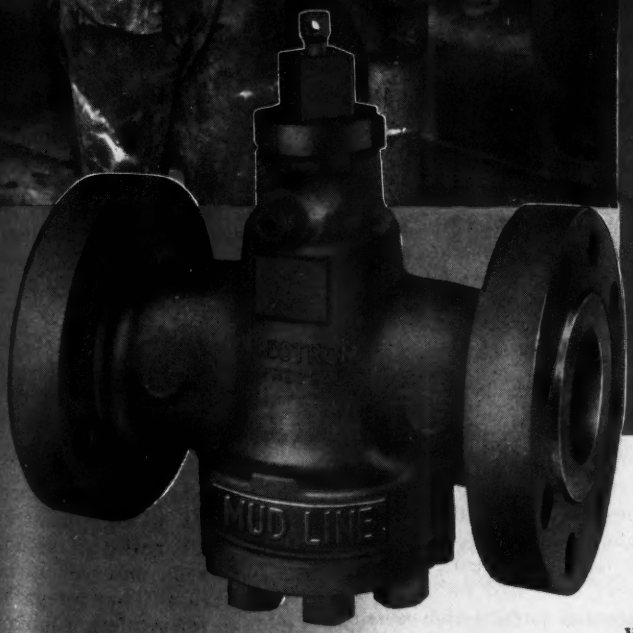

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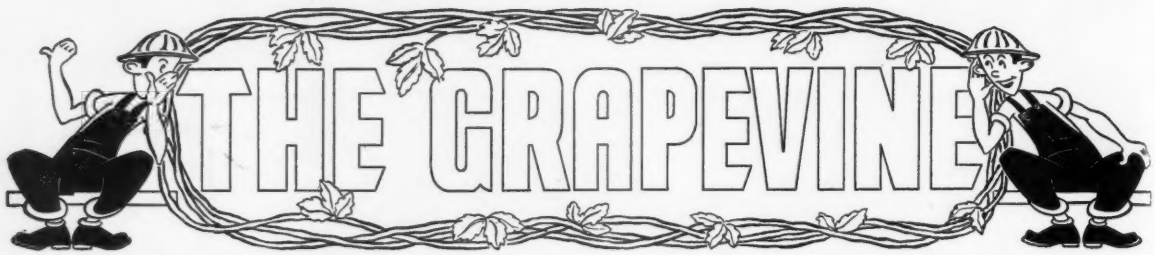


Things have really been humming around this ordinarily placid village during the past two weeks, and your correspondent has been dashing hither and yon with all the apparent abandon of a molecule that has been inadvertently involved in the Brownian movement. And, confidentially, if you don't know what the Brownian movement is, don't worry your little head about it, that makes at least two of us. Anyway, to begin this compendium of notes, we had gone up to the Petroleum Club late one afternoon to meet that delightful soul, Sam Keller, for whom we have been scribbling for an alarming stash of years.

Sam, in case you don't know that either, is advertising manager of the Parkersburg Rig & Reel Company, and is the editor of that company's widely read and highly regarded little magazine which is as well known to the average production man as his pay check and almost as welcome. Strangely enough, this was our first meeting with Sam, although we have corresponded with him for centuries, and we were not a whit disappointed in the chap, which shows how safe it is to judge a man by his works. He was considerably younger and better looking than we had expected, perhaps because, having looked at our own phiz in the bathroom mirror for lo these many years, we had arrived at the erroneous conclusion that writers are a homely lot.

We had it all figured out that Sam Keller was a big, shaggy-haired, good natured fellow, not too well groomed, but thoroughly nice to know and easy to like. We were dead right about all the mental and moral characteristics but we were a mile off in our prognostications of the Keller physical and sartorial makeup. Sam is a tastefully dressed little chap, neat and trim as a racehorse with a decided leaning towards the dapper side. He is, as we knew he would be an interesting conversationalist and in all respects nice people. It was good to catch up with him after all these years.

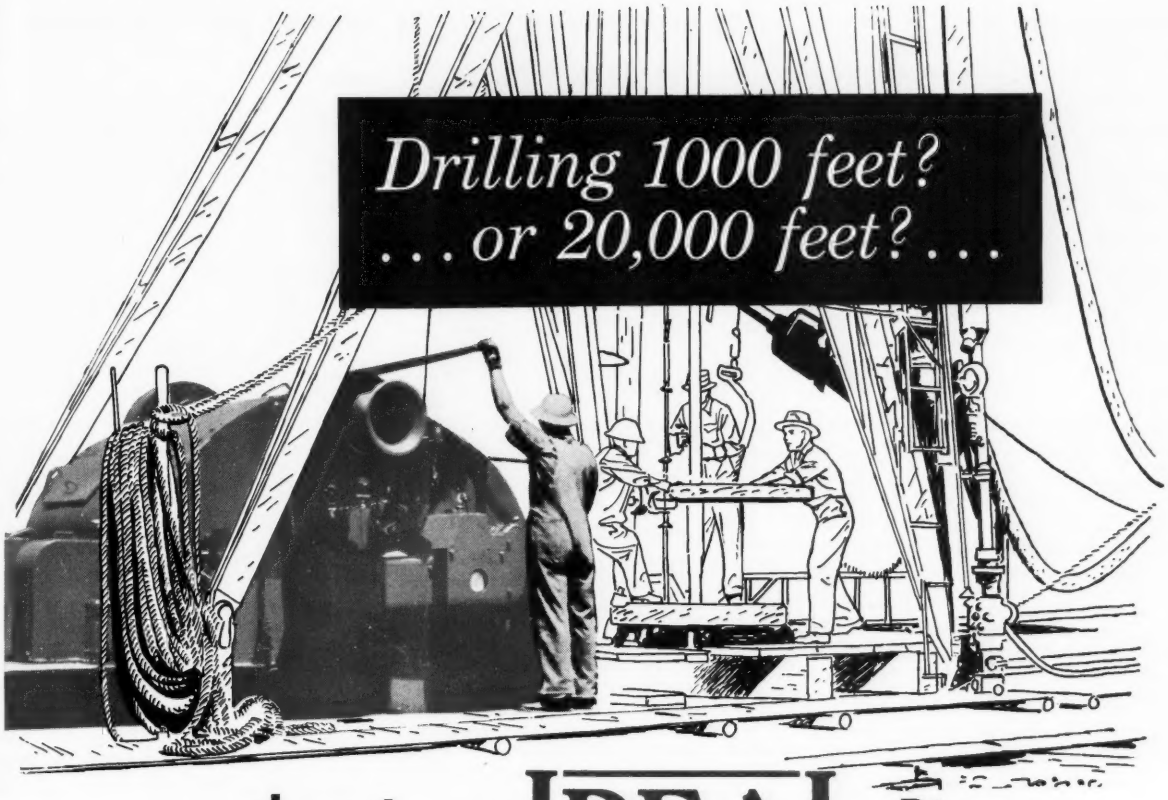
We discussed most enjoyably our past relations and respective credos and were fast becoming terrific friends when in came Bob Wire, prexy of Loffland Brothers, and his executive aides, B. B. Smith, vice president in charge of mid-continent field operations; John Grant, vice president in charge of the west coast affairs of the company, and Cotton Holder, field superintendent out thisaway. They were accompanied by Gene Davis, the field chief for the Arctic Contractors up Fairbanks and Point Barrow way.

Thereafter the conversation veered into some queer channels but it was all mighty instructive and elevating. For quite a while, however, we found it impossible to get Cotton interested in anything but his new wristwatch. It had just been given to him in behalf of Loffland Brothers by Bob Wire to mark the completion of his first 25 years with the company and he was as proud as a fox terrier with a bandaged tail. Incidentally, that gives you some idea of how the drilling contract business has grown up. Imagine them having 25 years employees already! We had no idea that any substantial part of the industry was that old, but Loffland Brothers operates nearly ninety drilling rigs, and if that isn't a substantial part of the drilling industry then we are the brother of a female anthropoid ape's husband.

Along towards tea time who should drop into the Club but George O'Brien, Elmer Olsen, Clint Furrer, and a few more high ranking Standard Oilers, with whom we exchanged greetings and a bit of pleasant chitchat. George O'Brien, one of whose extra-curricular interests is the Society for the Prevention of Calling Pullman Porters George, traded reminiscences with Cotton Holder about bull-head barbecues, of which both have partaken at different times and with vastly different results. Having discoursed on this and sundry other equally important matters, the Standard people went off to some sort of an evening meeting, Sam Keller went off to keep a dinner date, and we joined the Loffland quartet for dinner and a right nice seance at the Biltmore Bowl.

The outstanding acts of the Bowl show were a Turkish chap who produced a rash of live baby chickens from nowhere, and a bevy of comely lassies who could dance very well but didn't have to, they were just that good looking. Cotton never even saw them he was still too busy admiring his watch, but we younger fellows gave them a looking over they won't forget in a long time. It was all very exciting to a guy who usually eats at Joe and Maggie's giant hamburger stand and we are indebted no end to the Loffland boys for a glimpse of how the other half lives.

We popped into the weekly meeting of that little oil equipment export group that is really an offshoot from the Nomads and yet is not actually a part of it. They foregather now-a-days in the Athletic Club and on the day that we crashed in on them, we found quite a sizable and consequential group in session. There was John Flanagan, for instance, the arrow collar lad from the Johnston Tester Company, who has hosted more oil men from foreign fields more pleasingly and more often than anyone we know; Murray McWalker, the expatriated Caledonian, who is now comfortably associated with Lane-Wells; Harry Hester, the McCullough Tool Co. export representative, and a lad who seems to know his export onions thoroughly; and Roy Boydston, scion of the Martin-Decker house,



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who tells us that Elmer is down in Acapulco, fishing in behalf of Welch's restaurant for middle cuts of smoked sailfish and braised swordfish steaks.

Also present were Verne "Mitch" Mitchell, the Securaloy enthusiast, another of the better hosters and entertainers of visiting oil people; Ox "the body" Morgan, the recently transplanted New Yorker, who is now with Oil Well Manufacturing Company and rapidly becoming reacclimated to the ozone-laden atmosphere of the golden west; Roland Smith, the much traveled independent exporter who might have done well modeling men's wear if he hadn't gone into the equipment business; Pat Korte, a stranger to us, but a pleasant chap nonetheless who is with Graybar; Hearn Paschall, the ebullient H. C. Smith attache who really gets around and is mighty well known in these as well as in foreign parts; Johnny Mason, now with Orbit Valve Company and apparently very happy about his new connection; Chilli Sutton, another lad from Oil Well Manufacturing Company, who rates high in export circles; and last but far from least, Henry Pullman, the Baker Oil Tools ambassador whose travels make Gulliver, Marco Polo, and the Baron Munchausen seem like a bunch of old stay-at-homes. These export chaps do a wonderful job of public relations for the petroleum industry and we hope that some day this fact will be appropriately recognized.

Over to the Press Club at the Ambassador a few nights ago where Sam Bowlby, the genial Shell Company executive, gave us fellows of the fourth estate advance copies of a very fine collection of photographs by Thomas Hollyman, consulting photography editor for Holiday magazine. They are published in an attractive book, entitled, "Oilmen" which would be a valuable addition to any home library. We had a lot of fun at this academic whingding, concerting such celebrities as Stan Oatway, the domino whiz; Doc Miller, whose photo adds a dash of glamor to the book and will probably send it zooming up into the 'best seller" class; Al Collins, whose forty-years service pin with its four diamonds practically lighted up the place; Leo Newfarmer who also appears in the book and brightens it no end; and, of course, these tireless purveyors of good spirits, Carl Totten, the Benny Hogan of the P. R. boys, and his very effective right arm, Walt Martin. Incidentally, you can buy the book in any good bookstore and it will be well worth your while.

ONE-A-DAY TOUSSAINT

Jules E. Toussaint, recently elected vice president of Standard of California and general manager of its producing department for the past eight years, is a native of Berkeley, California, and a worthy citizen withal. He was graduated from University of California with a degree in mechanical engineering in 1922 and has been with Standard Oil Company since May of that year when he signed on as a construction assistant in the manufacturing department at Richmond.

During his college career, which, incidentally, he financed himself by working nights as a street car motorman in Oakland and Richmond, he was elected to Tau Beta Phi, engineering honor society, and was a member of the student branch of the American Society of Mechanical Engineers. In the meantime, he has had a widely diverse experience in the application of engineering principles in the various phases of the oil business, and has occupied many important positions as he climbed to his present eminence. He has been in the producing department for almost 20 years and became its general manager in 1945.

Jules is a fine chap, widely known and universally admired by his fellow oilmen. He has been active for many years in AIME and other industry organizations and has contributed generously to the development of production processes and techniques. Long before the discovery of vitamins, he was known as "One-A-Day" Toussaint, because he had a happy knack of completing the wells under his jurisdiction at that rate. He is a licensed engineer in California, and is a member of the Commonwealth and Stock Exchange Clubs of San Francisco, and the California Club of Los Angeles.

He makes his home in Menlo Park, has a son in Chico who has twice made him a grandfather, and another son who is attending—of all schools—Stanford! In his free moments, Jules loves any kind of angling from dry fly to deep sea. As a matter of fact, the only sport of Waltonian exercise he dislikes is fishing for stuck pipe, and we hope that his future will be particularly free from anything like that.

We hear tell that come May 15, Dud Hughes will sever his connection with the Long Beach Harbor Board and launch into the consulting business. Dud has had some mighty interesting experiences down there on the water front. The subsidence resulting from successive earth tremors posed a lot of pretty knotty problems that stimulated all sorts of thinking and doing. Such experience naturally develops much information that should be useful to a consultant and, anyway, we wish Dud success in the new venture.

From Valencia, Spain, comes a card, signed by Ted Lynton, the noted Cal researcher, asking that we pass along greetings to his California friends. He and Mrs. Lynton are doing the sights over there in order to complete their Spanish education. Ted is stationed in Paris with the Defense Materials Procurement Agency, helping to stockpile strategic metals and supplies, and is really in his element strutting along the Bois de Bulong, the Champs Elysee, the Avez Vous Soif, and other famous boulevards. He tells us that he has met loads of Californians over there, among them Harold Hoots, Army Armstrong, Bob Lytle, and Bill Kew.

Speaking of world travel, Doug Graham, the Dunlap & Graham top executive, accompanied by Mrs. Graham, daughter Mardel, and son, Douglas Jr., took off on April 28 in a spanking new PBY for an extended tour of the Latin-American countries. They are going practically everywhere south of the border, including Panama, Colombia, Peru, Chile, Argentina, Uruguay, Bolivia, Venezuela, Haiti, and then probably back up through Mexico. They expect to be gone from 30 to 45 days and will, of course, spend some time in Peru, checking on the company's operations there which are under the immediate direction of W. J.

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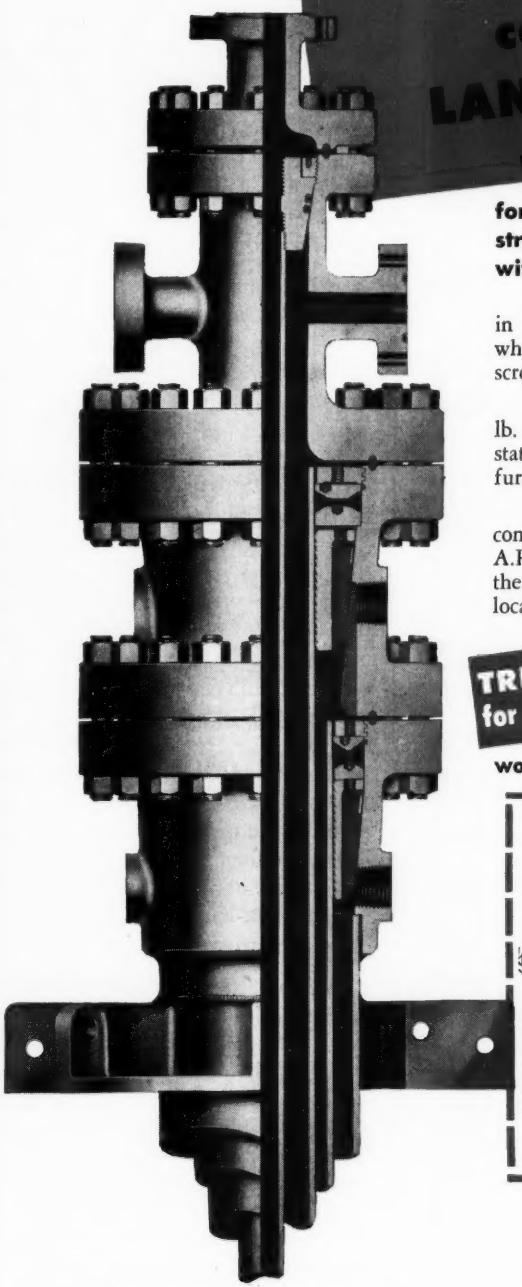

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"Swede" Larsen. They should have lots to tell when they return from that jaunt. Doug had expected to take some 18 or 20 passengers along on the trip but plans were changed and the family with the pilot and co-pilot now constitute the entire complement.

There are times when, despite the ignominy of the thing, it is better to lose than to win. Take the case of Joe Hudson's boy, for example, who entered some sort of a television contest recently and won it handily, so handily, indeed, that the thing was almost declared "no contest." But here's the rub: The prize awarded to the Hudson scion was a week's free board for his cat, which his cat would simply have loved had he had a cat. But he didn't, and now the senior Hudsons are debating no end whether to donate the free board to some neighborhood feline of good character, or keep it and adopt a cat which, if it is addicted to shattering the silence of the night, will do so in a becoming Texas accent.

Walt Greenfield, the golden voiced Signal Oil & Gas Company executive, is prouder than a pouter pigeon with a decoration, over the recent arrival of a grandson out in Arizona somewhere. Walt's daughter is the momma and the new boy answers firmly to the name of "Steve." The significant thing about this event is that before the boy was two weeks old, or so it is rumored, he had already organized a quartet and was singing "Moonlight Bay," which proved beyond question that our progeny are much more affected by heredity than environment, and explains why Walter is walking with his head tilted at such an acute angle these days.

Almost 1100 oilmen had a big time at the Petroleum Production Pioneers' barbecue at Shell Oil Company picnic grounds in Brea on Saturday, May 3. The steaks, served by Bill Feistner, and an unusually capable crew of caterers, were as tender as cottage cheese, and Hudson Drake, with his co-liquidators did as nice a job of libation ladle ing as we have seen in many a day. Charlie Reichert and his arrangement boys really took fine care of the old timers and it was by all means one of the best parties yet. Chris Christanelli, the Baroid concertina virtuoso, flew out from Houston at the beck of Jim Hughes, and had a busy afternoon accompanying the recurrent rash of quartets, quintets, sextets, etc., that kept springing up. They formed at frequent intervals and promptly assaulted the ether with shattering volleys of choral dissonance. Julius Lehman did the only solo work of the day —a lovely rendition of "The Shade of the Old Apple Tree." It was done with such astonishing clarity that several people recognized it.

All joking aside it was a great gathering. Hundreds of real pioneers came out to enjoy an afternoon of good fellowship with their old time buddies and as usual the weatherman smiled sweetly down on them. The dedication ceremony at Alamitos No. 1, the Shell discovery well at Signal Hill was a dignified and impressive affair, in which as master-of-ceremonies, Cy Rubel gave his usual polished performance. Sam Bowlby also comported himself like a true thoroughbred as he always does, and Mayors Tomlin and Chace of Signal Hill and Long Beach respectively, were lucid, interesting, and pertinent in their remarks. Paul Andrews expounded neatly on the historical aims of PPP and Cy Rubel's unveiling and dedication speech was brief but appropriate. It was all exceedingly interesting and very much worthwhile.

Among the old time Shell employees who were introduced as having had something to do with the bringing in of the well were Matt Schumacher, W. I. Parker, W. F. Sharp, G. L. Fogarty, C. H. Cupernell, and A. W. Spier. Also introduced was Duke Thornburg, who was geologist at the time the well was brought in. Unfortunately, Hap Yowell, back in Culpeper, Va., is not in good health, and was unable to fly out for the event. There were loads of other celebrities on hand for the ceremony but limited space again precludes the mention of many who are well deserving of mention.

The Lufkin Line

By VIC FAWCETT

A TRIP TO TRONA

Vic Fawcett

Trona, trading center of the Searles Valley, is a modern, industrial village of some 4,500 persons. It is the home of the American Potash & Chemical Corporation's 34 million dollar plant. Here in the Mojave Desert, bordered by the Argus and the Slate mountains, is Searles Lake, a dry, crystal body permeated with brine from which the Trona Plant produces chemicals.

Occasionally in my travels in the interest of *Lufkin Gears*, I encounter industrial plants which may be foreign to oil men, yet nevertheless of great interest to all of us.

A highly efficient and modern plant, American Potash & Chemical Corp. is well known to the Refining Division of the Oil Industry, to whom it supplies large quantities of Salt Cake for oil processing. Borax, Soda Ash, Sulphate of Potash, Bromines, etc., are but a few of the many chemicals produced at Trona.

Ray Samuels, Assistant Chief Engineer, tells me that daily production will average 1800 tons, or a 60 car trainload a day.

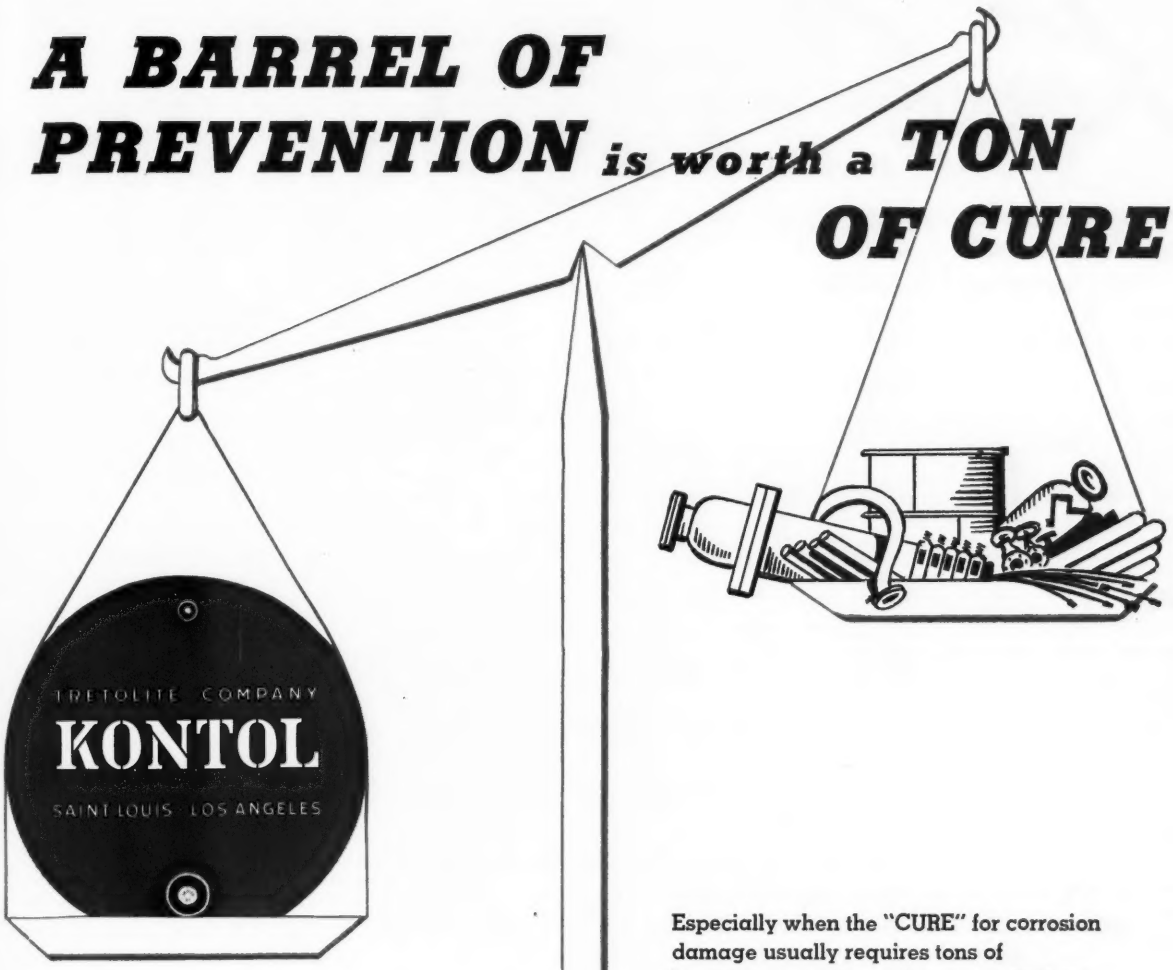
It is amazing to note the broad variety of industry served—pulp and paper making, agriculture, metallurgy, glass, explosives, medicine, soaps, glue—and if I'm not mistaken, I believe Mr. Myron Colony, Chief Engineer, even mentioned "baby powder."

Resourceful and determined, A.P.&C.C.'s Research Department continues to lure new elements from the brine year after year. Conservatively estimated, and produced at the present rate, this treasure chest of minerals, otherwise known as Searles Dry Lake, is good for at least another 100 years!

This industrial desert community, located some 180 miles from Los Angeles, may seem isolated to some of us city dwellers, but, Ray Samuels for instance, does not face the hazards of our traffic tangles and smog-saturated atmosphere any oftener than the law allows. It is my guess the same goes for Lee Johnson, G. W. Grundman, Jack Koetzner and some of the other boys. Darned if I don't think Ray has a point—those wide open spaces look good to me.

Vic Fawcett

A BARREL OF PREVENTION is worth a TON OF CURE



Especially when the "CURE" for corrosion damage usually requires tons of hard-to-get steel to replace corroded-out production or refinery equipment.

KONTOL inhibitors prevent corrosion damage by forming a tightly-adsorbed, impervious film at metal surfaces. This Kontol film effectively protects pumps, rods, tubing and flow lines in the field and is being successfully applied in refineries to combat severe corrosion problems. If you have corrosion troubles, get in touch with your Tretolite field engineer, today.

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K 52-1

Kern County OIL NEWS

EVEN KERN COUNTY is not taking the new discovery here in stride. Apparently the Richfield Oil Corporation and Kern County Land Company have made a most significant discovery up around Wheeler Ridge. Scribes up here are even identifying it in relation to the glorious wildflower areas off the Grapevine.

THE STORY has been told, but the human side of the "oilitems" carries on. Our friends up here in San Francisco are writing new stories every day. The geologists have really made something happen after fifteen years. This is Americana for you.

MORE CREDIT FOR GEOLOGY is reported to us by the close friends of ROLLIN ECKIS, chief geologist for Richfield, who also credit the "knowhow" on the site. Irving Schwade was in there and our good friend Joseph Le Conte struggled superbly with the working out of details. He was further assisted by Stan Carlson via paleontology.

BIGGER NEWS THAN YOU THOUGHT is the Richfield discovery. It is not an extension as we thought it was. It is a province. Something brand new, and the first time the Eocene has been successfully explored in this area. It proves up many things. Even the Ohio test and almost anything around Wheeler territory is enhanced.

KERNALWIGS are coming to San Francisco often these days. Some production is moving up this way. We are still getting all the Kern Oil News by various methods including thought control. Al Dewire is coming up this way for some Conservation Committee work, we suspect and hope he can get over across the bay after hours. Understand Al was elected to the Bakersfield Lions Club. That is pretty important too. Probably will have to go to Mexico on his vacation to attend the big "roar" which is held "thataway" this year. Al takes part in the community also with the rest of the oilwigs and is chairman of the Red Cross Drive. IF PEOPLE EVER GET DOWN FOR A SHORT OR LONG COUNT . . . IN THESE HOSPITALS . . . THEY WILL FIND OUT WHAT'S DOING VERY FAST by the Red Cross . . . especially by the Gray Ladies who volunteer. We have increased our bit 500 per cent.

SPEAKING OF THINGS: "Twas down in old Kentucky, where a paradox was born. The corn was full of kernels, and the Colonels were full of corn." Sounds like Colonel Howard Nichols who may have sent it in.

MAN BITES DOG: At least the news could not be more exciting than the reported sale of Independent Exploration. However, the reshuffle instead of a sale makes a new firm name for Kern on account of Texas origin. INTEX OIL COMPANY. Sokay with us. A news release up here tells of an employee commemoration of the event which was held in Bakersfield at Joussauds.

MONTEREY COUNTY gets oil advertising again. Jergins is now "Monterey Oil Company" over at San Ardo after the General Petroleum General American deal with Jergins.

TEXAS ARVIN development is going right along, but in the hands of others long since divorced from the old Texas try personnel. We mention it to answer several inquiries.

FRED GREEN has been the consulting geologist on a lot of the Point of Rocks endeavor. Easton and Laccre have been consulting engineers relative to the 4th zone. Understand a nice 500 B/D "er" has created new interest.

NEW PIPELINE RUMORS from Texas, conducting oil has put Kern on the latest gossip subjects.

OHIO'S PALOMA DEEP TEST—For some time we have been hearing about Ohio Oil Company and its testing of the deeper sands, so we went out and brought in a good sample of the crew we found there: Left to right, E. E. McCUTCHEON, rotary helper; J. J. HELTON, derrickman; M. S. SEXTON, rotary helper; HOWARD WEIMER, rotary helper; and V. E. GILLETT, driller; all of Bakersfield.

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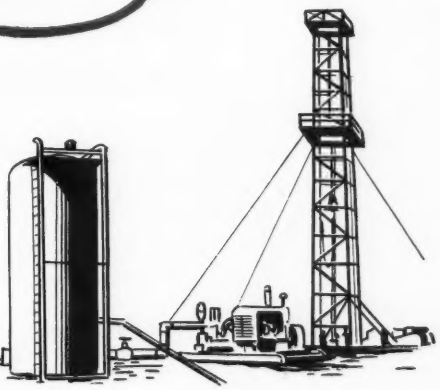

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Kansas has been shut in they say, and it's according to good authority. Not very much but there seems to be too much crude there for processing by the refineries. The demand here is just as great, however, and production is opening up.

SCOUTWIG SLANTS: We are informed that Universal Consolidated will have made a new discovery by reading time this month of May. A little sidelight reveals that this proposed well or prediction was contained in a recent guidebook by A.A.P.G. before drilling took place. DICK CLARK and DON FORD are now identified with TWA and Sunray respectively so we were told. DON DIGIER now with Ohio. AL MOREJOHN with Seaboard to help W. G. McCombs. KENNY BRUNTO is with Union Oil Company Production Department. RALPH EMEINES has left the company. ART RANDOLPH was also in the news. BARNEY LINDSAY and JIM MILLER went with Sunray in Los Angeles.

SELF EMPLOYED: Our very good friend BOB AYERS from Ohio, has gone to Houston as consulting engineer on his own. ROSS PHILLIPS from British American is now also an individual entrepreneur, "consultanting" on his own.

W. G. (Jerry) Lake, Assistant Manager of Western Oilfields Supply Company, shown with his latest accomplishment which is a cleverly designed valve for Sprinkler Systems. His duties are Purchasing Agent and Designer of Sprinkler Equipment. He is a graduate Engineer from U.S.C.

BILL CRAIG FORMERLY with Bell Petroleum Company is going to Casper as consultant for himself. Good luck to them all.

ROSALIE SPRAGG is now with Lee Wix at Western Gulf, and Bill Schlax has gone to Sacramento for Superior Oil Company.

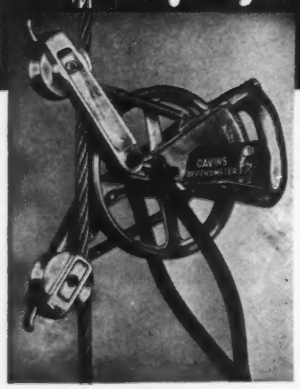
ADD OTHER GIRLS Gladys Buckley once with Honolulu as draftsman or draftslady, has accepted a position with Standard Oil Company in Bakerfield. After leaving Honolulu Oil Corporation Miss Buckley went into business for herself, but invaded a different field.

THIS REMINDS US that Paul McGovney has returned to Casper for Honolulu Oil and has selected a good time of the year for so doing.

GHOSTS OF YESTERYEAR: Several people have asked us up here at Ft. Miley about old stocks as well as new ones. This continues at quite a pace. The Bolsa Chica Oil Corporation is one of several concerns operating the Vega Corporation of Texas owned by Los Angeles people. Write any bank or broker is an idea.

WILLIAM E. HAMMOND died at Atherton late last month. He was

Why Guess ABOUT WIRE LINE MEASUREMENTS?



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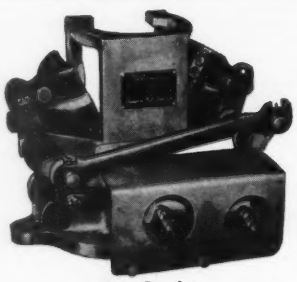

(Pat. Pend.)

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There is no substitute for know-how and honesty of purpose. Our know-how comes from a quarter century experience in the oil oil tool business and our purpose is to give you the very finest tools.

You'll find both of them built solidly into the ADVANCE AUTOMATIC AIR-POWERED TUBING SPIDER, the first and only complete tool of its kind. Don't get stuck with an imitation—our bulletin No. TS-52 tells you how to avoid it.

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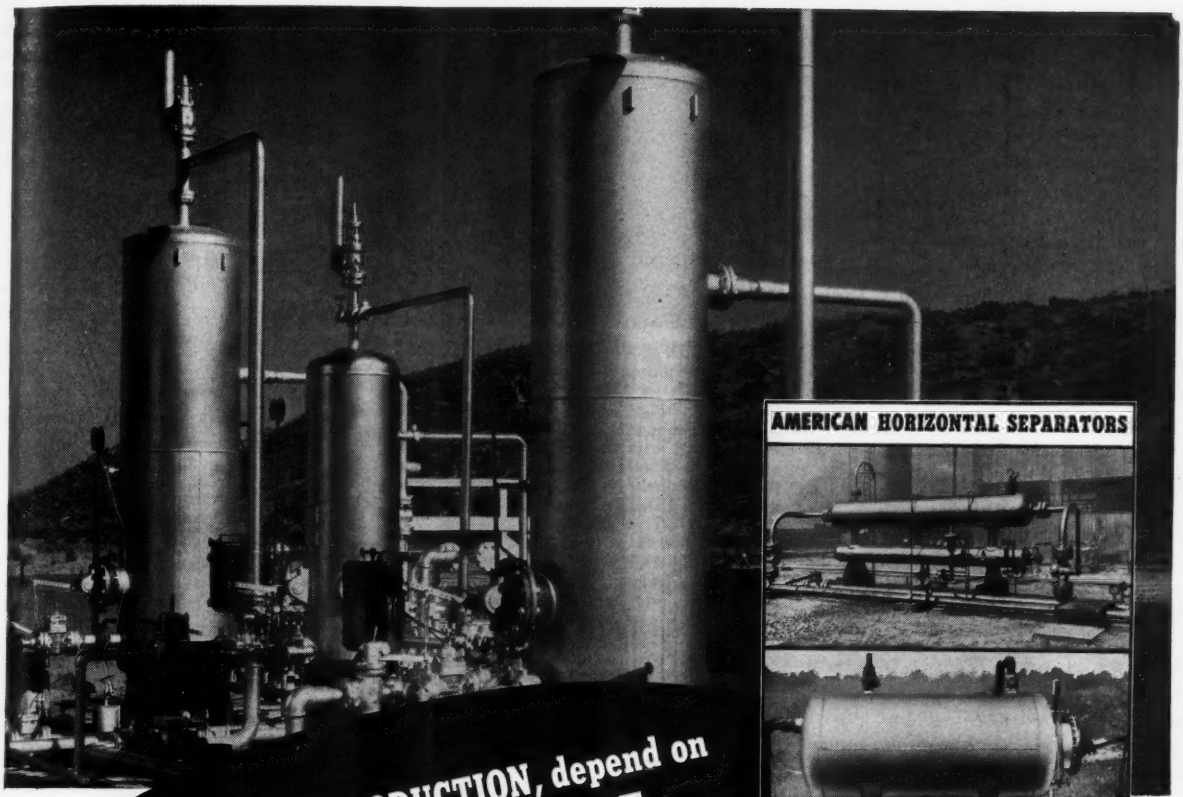

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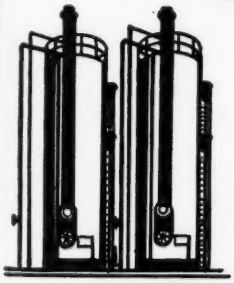

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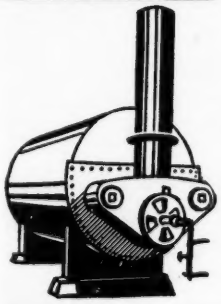

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These portable, automatic units meet your needs for either high or low pressure operation. Wide size range for any capacity gas or oil production.

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a great champion of the oil industry and was instrumental in promoting the retention of private ownership of oil land wherever possible. Oilmen remember him as head of the Western Division of the U. S. C. of C. for 12 years out here. He understood the oil producers problems and will be greatly missed nationally as well as in California.

GLAD TO SEE Mr. Alan J. Lowery, vice president of Union Oil Co., assist in the sponsorship of meetings out here, of the PUBLIC RELATIONS SOCIETY of AMERICA.

FORTY YEARS AGO the Merchants Association postponed a trip to Fellows from Bakersfield, on account of the condition of the roads. Ramie was growing out at Lerdo just in case you fellows ever ask about that again. C. P. Fox announced the construction of the New Mariposa Hotel in Taft. California Oil World had already been started, and there was nothing but Kern Oil News items at that time, so we were told by a visiting Elk from the PG&E, Frank J. Burkhard.

KERN COUNTY MUSEUM is the recipient of some old cable tools

KERN COUNTY'S PART IN OIL FOR DEFENSE was thoroughly discussed when the brassoilwigs of the country visited Kern County recently. Kern was acknowledged again as the nation's largest producing county, and with opening up of Elk Hills and the field extension at Wheeler Ridge the future looks better than ever here. ROBERT L. FOREE, director of production, PAD; ROBERT WILSON, chairman of the board of directors, Standard Oil Company of Indiana; and E. E. PYLES, president of the San Joaquin Valley Oil Producers Association, are responding jubilantly to the press.

which most people have either never seen or have forgotten. These were donated from the Berry Oil Company . . . and you guessed it . . . FRED OWEN was the thoughtful donor.

SEMINAR NEWS: John Van Osdel, co-ordinator of the petroleum program for adult school announces that there are only three remaining meetings of this year's seminars. Hubert C. Ferry spoke at the 14th session. He told of government regulations relating to development of petroleum in California. Oil field waste disposal problems were included in his paper. He is assistant to the senior vice president of the Union Oil Company and represents Union in the administration of properties here in California and in charge of co-ordinating foreign operations of his company. He holds many honorary and active chairmanships in the industry's related associations.

DEFENSE PRODUCTION ADMINISTRATION has had the help of local oil people like E. A. Bender and others in scrap drives. Recently the discarded tin cans have been called for collection since five pounds of tin cans will produce four pounds of copper . . . still a critical item.

WILSHIRE OIL COMPANY has sent its Ed. Pickett from Bakersfield to Casper.

WE ALMOST FORGOT that our old friend Bill Bailey has been

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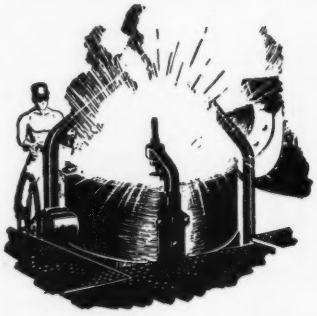

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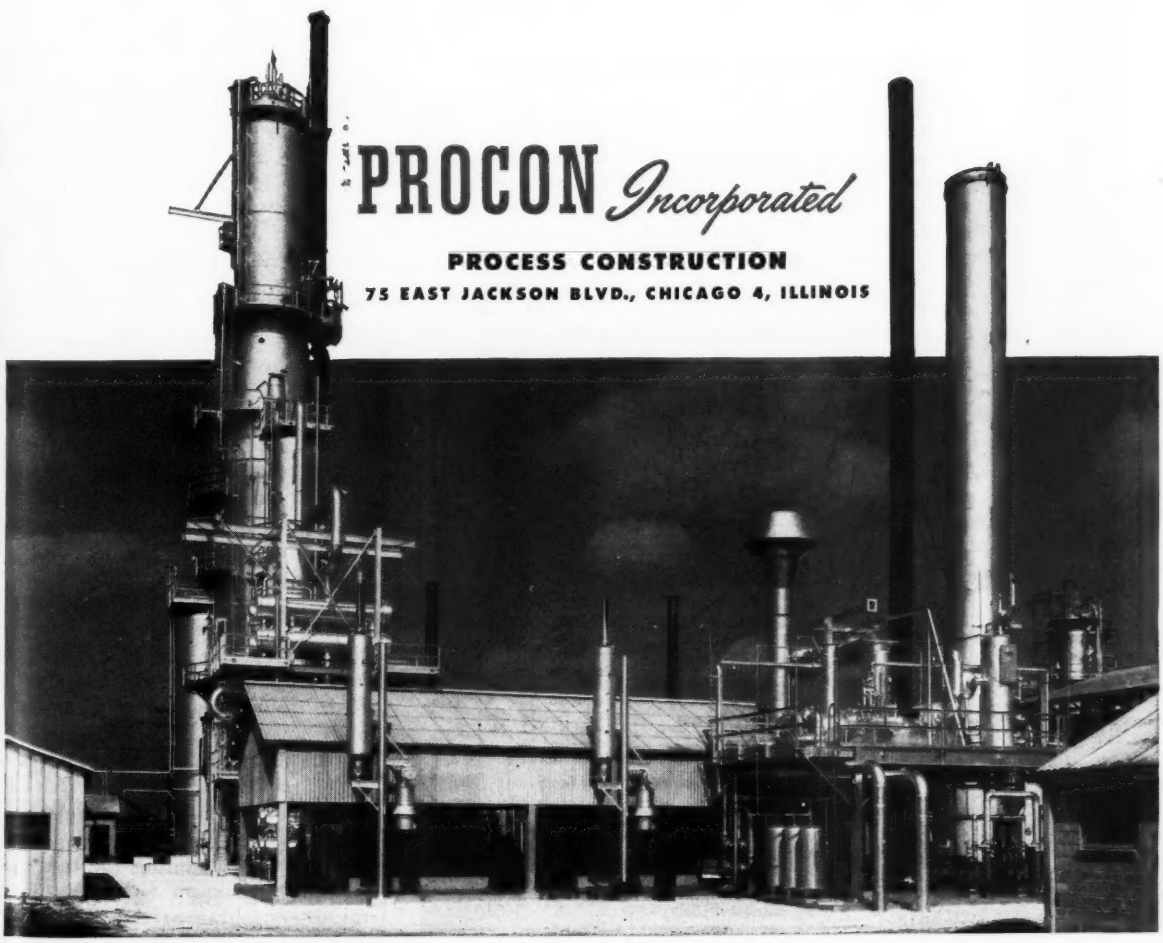
While this new unit was still under construction, Bay Petroleum placed an order with Procon for a second UOP fluid cat cracker to be built at their Denver refinery. Such confidence is convincing evidence of Procon's ability and facilities to handle any refinery or petro-chemical plant construction job.



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transferred from the D.O.G. here to Santa Maria replacing Sam Dohlman.

SOMEBODY was kind enough to pay our API dues whilst laid up in the Ft. Miley facility. Thanx.

UNOPR ELK HILLS . . . Vic Wankowski has friends all over California. One of the Gray Ladies and her husband were asking us about Vic and his wife the other day. Guess John Wells is still his engineer. Secretary Chapman is still trying to get Elk Hills opened up.

BASIN OIL COMPANY is in the news again. To those of you who asked, C. G. Wells is president and George L. Machris is Veepee.

OCEANIC OFFICIALS have been busy quite recently and we have run across FRED KELLER, president; JACK BEACH, vice president and general manager; VIC CHURCH, chief geologist . . . plus several new officials who have joined them in their expanded operations.

ASKING QUESTIONS AGAIN: Someone the other night told us that the STEVENS sand came from the name of a railroad crossing siding, not far from which a new zone was found.

"HOOKS" HOOVER tells us that we can expect a lot of continued activity around Fruitvale areas for a long time. This is good and substantial news.

WHAT'S IN A NAME? Well, we made a fuss about it and then forgot to report that Kern's newest neighbor town is NEW CUYAMA. Richfield Oil Corporation board ruled on it according to our information.

THERE IS AN EXAMPLE OF good public relations. Richfield, ever advertising conscious, was expected to rule on a name like "New Richfield," but also ever public relations conscious with so many interested in the area and still trying for more oil, the company acted unselfishly indeed.

BY THE BY, Stan Conrod and Harry Jamison went to Washington for Richfield. JOHN WIESE and BEN RYAN went to Denver . . . and SAM STEWART is up looking around in Canada.

BARBECUE, GOLF and BOWLING feature the A.P.I. barbecue this year and the event is May 24 at various times of the day and evening. The golf will be at the Bakersfield Country Club, and we hope to be back with a revised handicap . . . at least it will be a handicap of some kind . . . revised or unadvised, we'll let you know.

SOME OF THE OILWIGS AND WAGS who have made a special trip up here to see us in person have been W. R. (Bill) Winton of Palomar, Tom Kirker of the Elite; Dr. Walter Vilas who pulls more oilwig teeth from Fellows, Taft and Bakersfield than anyone else we know of. Cecil T. Jones of Gundlach, the oilwig plumber and air conditioner; plus five timid souls who asked us not to tell lest Rotary would remind them. The score of contacts to date adds up to 474. Almost enough to reduce taxes at the Kern County budget hearing.

SPEAKING OF TAXES . . . understand the new chairman of the Board of Supervisors, CHARLES P. SALZAR an oilwig himself, is really using the double bladed "haxet" and trimming the frills like a tree surgeon in a jungle. If he misses anything at the preliminary he will make it up at the June finals.

GRANT VERTICAL CASING SCRAPER

THREE SETS OF CUTTERS are held in expanded position against the casing circumference by means of heavy springs...

CUTTERS ARE SPACED so as to overlap in their contact with the casing, provide the most effective and efficient cutting action, give better fluid return path...

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FOOL-PROOF LOCK holds cutters securely, yet cutters can be quickly changed in the field when worn.

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Underreamers (Cable Tool)	Bulletin No. 27
Hole Enlargers	Bulletin No. 38
Reamers	Bulletin No. 43-A
Hydrostatic Perforation Cleaners	Bulletin No. 50
Dump Bailers	Bulletin No. 51
Roller Cutter Shale Bits	Bulletin No. 54
Sand Pumps	Bulletin No. 55
Well Cleanout Equipment	Bulletin No. 57
Wall and Bottom Hole Scrapers	Bulletin No. 58
Vertical Casing Scrapers	Bulletin No. 59

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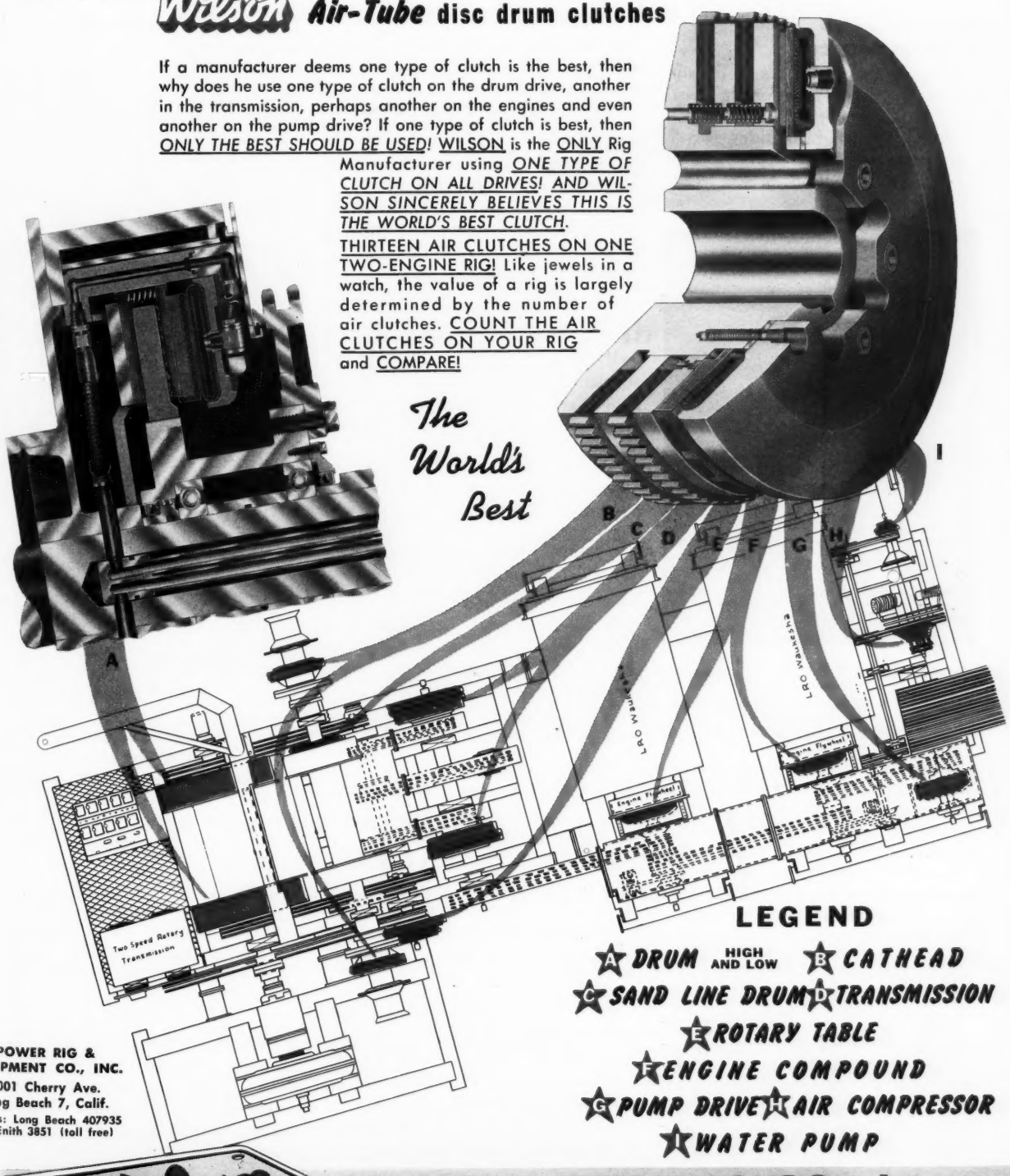

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Personalities IN THE NEWS

App Completes 40 Years Service

Max S. App, vice president and director of production for the General Petroleum Corporation, recently received the congratulations of the corporation's executive committee upon his completion of 40 years service.

Max S. App

App joined General Petroleum on April 26, 1912, at Taft, Calif., as an engineer when the company itself was only a few months old. He became General Superintendent of the Production Department in 1939, manager in 1944, and vice president in 1947.

Supervisors of the production department have feted App at a barbecue at the company's Tonner lease near Brea.

App lives at 13614 Hart Street, Van Nuys.

Green & Heiser Drilling Company has been organized in Bakersfield to engage in the contract drilling business. A partnership, A. J. (Art) Heiser was formerly with the Brown Drilling Company of Long Beach.

William E. (Mike) Shay, oil lease and landman, has established a permanent residence at Billings, Mont., to supervise his widespread interests in the widening Williston Basin. Oil development in the basin also has prompted Larry Barker to rent his home at Pacific Palisades and buy a home in Billings. Bill Helm, Jr., is another member of the oil fraternity considering moving up there from Los Angeles.

Harry Joiner of Ventura, 47, oil well drilling crewman, was killed accidentally in the South Mountain field near Santa Paula.

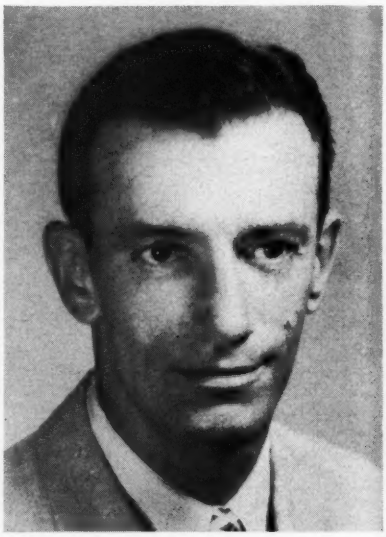
At a meeting in New York the Tide Water Associated Oil Company elected two stockholders to the board of directors. The new directors are D. T. Staples, executive vice president and director of Pacific Western Oil Corporation, and Fero Williams, controller, assistant secretary and assistant treasurer of Pacific Western, and assistant secretary and assistant treasurer of Mission Development Company. Both Staples and Williams make headquarters in Los Angeles.

W. E. Church, telephone superintendent for Shell Oil Company at Los Angeles, was elected vice president of the Petroleum Industry Electrical Association and the Petroleum Supply Association at the 24th annual conference held in Tulsa.

Lieut. Bob Atha, Jr., son of Robert Atha leading oil producer at Roswell, N. M., has returned to the United States from service abroad and he is contemplating joining the Atha Exploration Company, headed by his uncle, George Crawford Atha.

Krueger Advances at Sperry-Sun

William F. Krueger, who for the past five years has been in charge of sales in the Houston District of Sperry-Sun Well Surveying Company, has been promoted to General Sales Manager for the Company, with headquarters at Houston. After

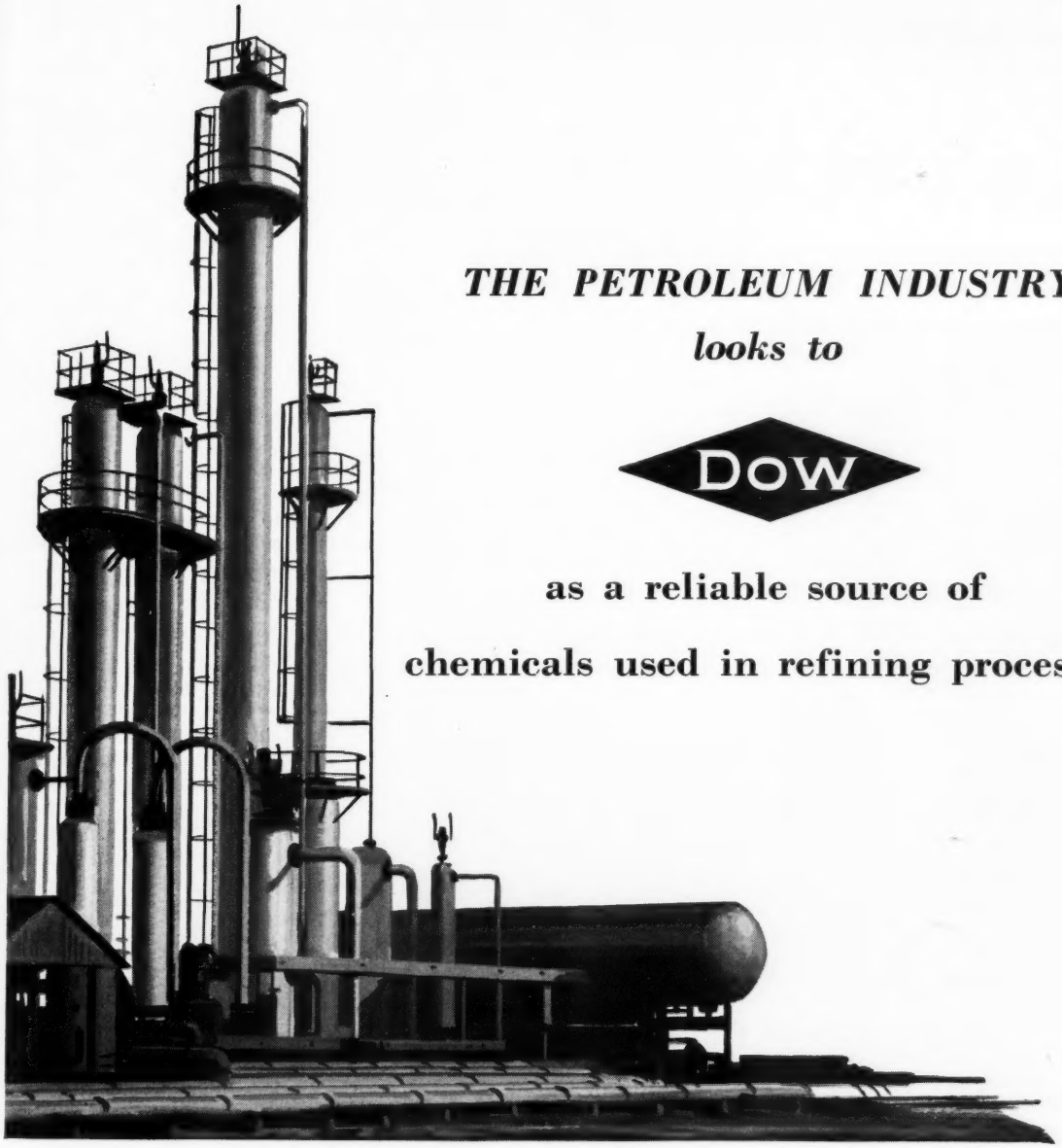


Wm. F. Krueger

getting his degree in Petroleum Engineering from the University of Oklahoma, Krueger was with the U. S. Bureau of Mines for about three years before joining Sperry-Sun in 1938 as a Sales and Service Engineer.

Quentin B. Marsh, who joined Sperry-Sun in Illinois in 1948, has been promoted to the Managership of Sperry-Sun's Houston District Sales Department to replace Krueger.

Fred Keller, president of the fast-growing Oceanic Oil Company of Los Angeles, has returned from an extensive trip over the Williston Basin. Oceanic owns important leases in the basin.



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New Sales Appointments In American Meter

Bertram S. Truett has been recently appointed District Sales Manager in San Francisco, and Mr. Edward L. Wynne has been appointed Sales Representative in the Chicago Sales Territory of American Meter Company, it has been announced by Mr. C. B. Dushane, Jr., Vice President in charge of Sales.

Bertram S. Truett

Mr. Truett started with American Meter Company, Inc. in 1937. He was a Sales Engineer in the San Francisco Division until 1942 when he went on active duty with the Navy. After nearly four years of World War II service, he was separated with the rank of Lt. Commander and reentered Civilian life in American Meter Company's San Francisco office. As district Sales Manager in San Francisco, he will cover the area of Northern California, Northern Nevada, Washington, Oregon, Idaho and the territory of Hawaii. Mr. Truett is a member of the ASME, ISA, the Pacific Coast Gas Association, Southern California Meter Association, California Natural Gas Association, American Ordnance Association and the Engineer's Club of San Francisco.

Mr. Wynne who has been with American Meter Company since May of 1951, will cover the States of Iowa and Nebraska as Sales Engineer under the Chicago Sales Headquarters, making his residence and office in Omaha. For the past year he has been undergoing a period of factory training for thorough familiarization with the Company's complete line of displacement meters, orifice meters, regulators, and related instruments for measurement and control of gases and fluids. Prior to his association with the American Meter Company he served in the U. S. Army Air forces and was associated with the Minnesota Mining and Manufacturing Company.

Two supervisory changes in General Petroleum Corporation's Production department have been announced by R. O. Swayze, Manager, California operations.

Harry H. Carrick has been transferred from Taft (Calif.) as Assistant to Superintendent, Southern Division. He reports to E. V. Watts, Superintendent, with offices at Vernon.

John J. Browne replaces Carrick at Taft as assistant to Superintendent, San Joaquin Division, and reports to D. G. Kingman, Superintendent. Browne advances from his former position as Production Engineer in Wilmington.

Both men have had similar careers with General Petroleum. Classmates at the California Institute of Technology, they came with General Petroleum as roustabouts shortly after their graduation in 1939. Both men are members of the American Petroleum Institute. Carrick is also a member of the American Institute of Mechanical Engineers, and Browne of the National Association of Corrosion Engineers.

Vern A. Bellman, General Petroleum Corporation vice president and director of marketing at Los Angeles was a principal speaker at the North American Gasoline Tax Conference at Phoenix, Ariz.

He said that Western oilmen are facing a 50 per cent increase in demand for gasoline in the next decade. He explained that since the percentage is compounded annually, it works out to close to 50 per cent increase in a decade.

Richard F. Sheehan has been named supervisor of advertising for the Oil Industry Information Committee according to an announcement by Acting Executive Director Edwin W. Esmay. He will make his headquarters in the OIIC's national office in New York.

John S. Shaw, 66, one of the country's pioneer safety engineers, died at Houston, Tex.

Paul E. McGovern, formerly with Honolulu Oil's geological office at Bakersfield, is now in Billings, Mont., where he heads the company's new office. Robert B. (Bob) Galeski has taken over the post left vacant at Bakersfield. Floyd Johnson, another geologist formerly in Honolulu's Kern County office, has left for Salt Lake City to work in the Basin-Range provinces.

Three Years of Commercial Platforming

(Continued from Page 12)

cracked gasolines when it is desired to desulfurize, saturate, and raise the octane number simultaneously. Results from the Platforming of a blend of 70 per cent Santa Maria Valley coker distillate and 30 per cent Los Angeles Basin straight-run naphtha are shown in Table 5 for the purpose of illustrating this type of processing. The feed stock had a sulfur content of 1.75 per cent and a bromine number of 50. After processing, the sulfur in the Platformate was only 0.0007 per cent, and its 1.8 bromine number indicates essentially complete saturation. Using 6.3 per cent of outside nbutane for vapor-pressure requirements, a yield of 99.2 per cent by volume of 10-lb-RVP Platformate, with an F-1 leaded octane number of 95.2, was obtained. This operation was more than self-sustaining with respect to hydrogen, inasmuch as there was a net production of 265 cu. ft. per bbl. of feed.

The processing of high-sulfur cracked gasolines, and the reaching into the high octane-number region above 95 F-1 leaded values, are examples of what the Platforming process may be called upon to do in future motor-fuel production. These techniques have been demonstrated in pilot-plant operations.

REFERENCE

[1]Oil and Gas J. **50 (38)** 243 (1952).

This paper presented at the 17th Mid-Year meeting of the American Petroleum Institute's Division of Refining, San Francisco, California, May 14, 1952.

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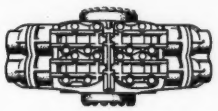
Space-Saving Compactness

Even in sizes as large as 13⅜" (12" Series 900), the Shaffer Hydraulic Double Cellar Control Gate provides two compartments unitized into one body in an overall height of only 30". In a Shaffer Hydraulic Single Gate of the same size only 18½" is required.



Completely Enclosed Design

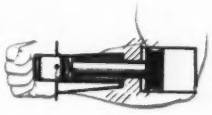
All moving parts—even the piston rod ram shafts—are completely enclosed within the body of the Gate. There is nothing to become wedged or damaged by objects falling into the cellar—nothing to become corroded by chemical or salt-mud drippings. Even the locking shaft is non-rising—fully protected!

Simple Ram Changes

Just unbolt and swing open a side door, slide out the ram assembly, slide in the new assembly, close and bolt the door. It's by far the simplest ram change in any control gate—and complete ram changes can be made whether the pipe is in or out of the hole!

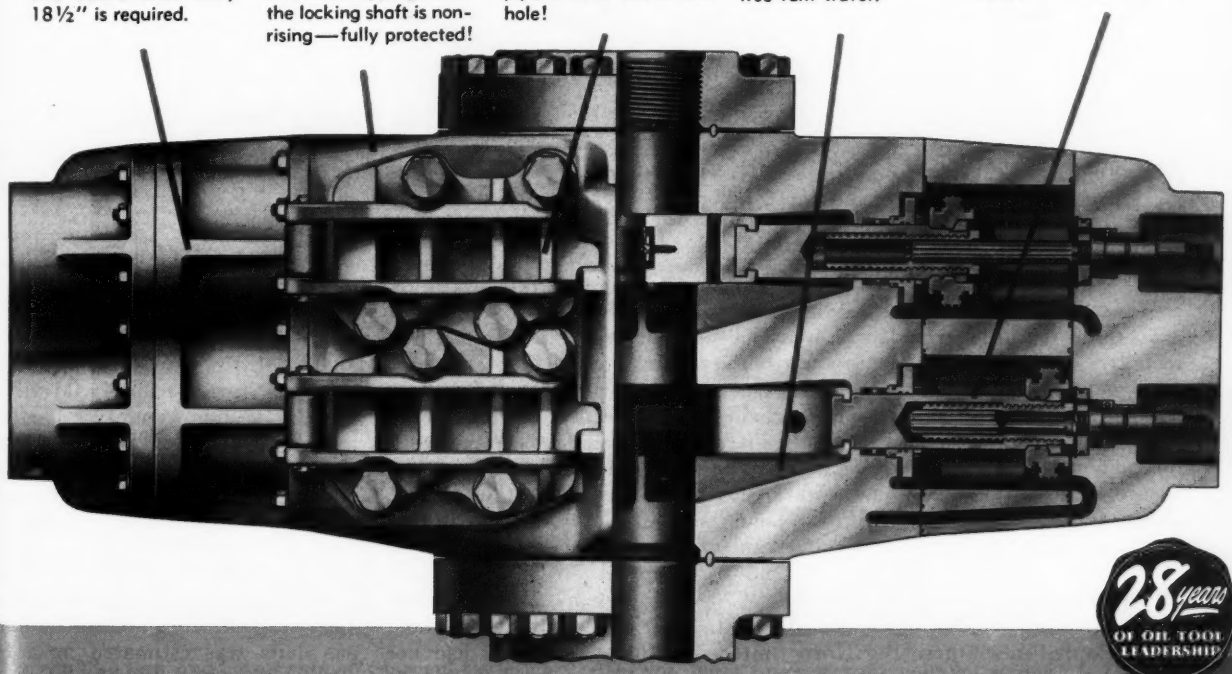
Self Draining Construction

Note how the rams travel on high narrow guide ribs above the steeply-sloped bottoms of the ram compartments. Mud and sand quickly drain back into the well—leaving no detrimental accumulations to interfere with free ram travel!



Direct Hydraulic Drive

Note how the hydraulic operating cylinders are directly behind the rams for positive action, maximum simplicity, greatest safety. There are no complex mechanisms, no yokes, no secondary connections between hydraulic cylinders and rams!



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Rocky Mountain NEWS

Colorado—Idaho—Montana—New Mexico—Utah—Wyoming—Western Canada

A. F. Barrett, Rocky Mountain manager of the General Petroleum Corp., is the new chairman of the Rocky Mountain district of the American Petroleum Institute's Division of Production. He succeeds C. H. Griffin of the Phillips Petroleum Co., who was elected head of the advisory committee. Both men have headquarters in Casper.

Elections took place at the seventh annual meeting of the organization in Casper late in April.

Other officers named were Claude Peavy, Phillips Petroleum Co., Denver, vice chairman for Colorado; C. L. Cooksey, Carter Oil Co., Vernal, vice chairman for Utah; H. B. Gernert, Trigood Oil Co., Casper, vice chairman for Wyoming; R. D. Smith, Union Oil Co., Great Falls, vice chairman for Montana. H. H. Healy, Ohio Oil Co., Casper, was elected vice chairman at large. S. J. Lintzenich, Hughes Tool Co., Casper, is the new secretary-treasurer.

More than 500 oilmen attended the convention, largest attendance on record. Casper was selected as the permanent convention city. Keynote speaker was Paul Endacott, president of Phillips Petroleum Co., who forecast increased activity in the Rocky Mountain region and advised oilmen to take full advantage of new technical developments.

A. F. Barrett, Casper, Wyo., New President of the Rocky Mountain District of API's Division of Production.

Wyoming

A unitization program is expected to be adopted in southern Big Horn County, with negotiations now under way. Development of the area is said to hinge on construction of a sulphur and natural gas plant. The Manderson and Slick Creek fields, the Husky-Wilshire development southwest of Basin and the Gulf Oil discovery near Worland probably would be involved in any unit agreement.

American Liberty Oil Co. has discovered a new pay zone in the Sussex field in Johnson County. The company's No. 3 Meike, ne se se 18-42n-78w recovered 1500 feet of oil on drill stem test of the Second Wall Creek formation. The test was between the interval 7096-7120 feet. Operator later was reported drilling below 7510 feet for further tests. The Second Wall Creek is the tenth formation from which oil has been recovered in this field. Closest Second Wall Creek production is several miles to the south in the Meadow Creek field.

The discovery by McDermott & Co. in Sheridan continued to hold interest, although the well had not yet been proved commercially. It was the first oil recovery in the county. The McDermott well, No. 1 Barry, nw nw sw 24-58n-85w, was being put on pump. Large amounts of water have accompanied the oil. Swabbing and testing have been under way, and recent figures showed a swab of 180 barrels of oil and 70 barrels of water per day. Total depth is 4798 feet.

In the east central part of the state, 16 wells are expected to be drilled this summer in Niobrara County. Considerable activity also is indicated in Weston County, in the northeastern sector.

Pure Oil was swabbing West Poison Spider No. 3 Unit 30 miles west of Casper, in Natrona County, but showed no encouraging results. Only water, mud and emulsion were recovered. The test has been drilled to 16,607 feet, second deepest in the state.

The Texas Co., which found show of gas in the Morrison at its No. 1 Unit at Foster Gulch in Big Horn County, was drilling in the Sundance below 9,300 feet. No further shows were reported.

Colorado

Plains Exploration brought in the second well in Washington County with the Kimbark Co. No. 1 Ward, se se se 3-2s-54w. Operator recovered 2600 feet of oil on drill stem test. The formation was not reported, but the test recently was drilling around the 4,000-foot level. Shell Oil Co. was drilling below 6400 feet in its Jackpot wildcat, 15-6n-58w, Morgan County. The test topped the Dakota at 6360 feet. There have been some oil shows but nothing commercial up to this time.

The same operator was coring below 6620 feet at its Mount Hope wildcat, 30-9n-53w, in Logan County. Test is scheduled for the granite. Two million feet of non-inflammable gas daily was estimated on a test at 6483-97 feet.

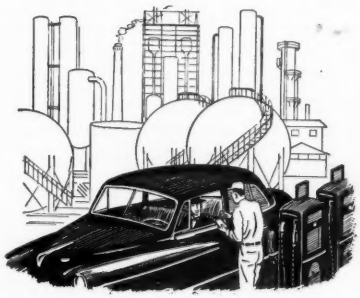
In Kiowa County, Superior Oil Co. was drilling below 4225 feet in its Eades wildcat, 16-18s-46w. Operator found some shows of gas below the Topeka, which was topped at 3374 feet. Sulphur water was recovered on test at the 3679-3715 foot interval.

Continental is heading for the granite in its North McCallum, 2-9n-79w, Jackson County. At last reports the well was below 2730 feet.

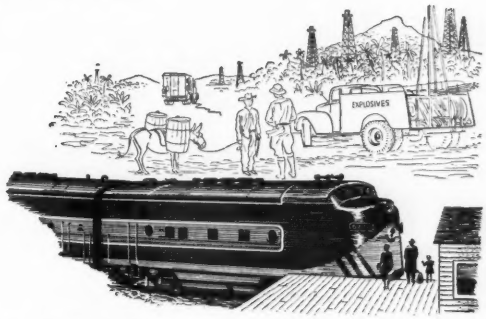
"Am I supposed to be glad you're big?"

Many people write us *such comments as this:* "*I've heard people talk against big companies like you. Lately I've been reading your statements about bigness. Am I supposed to be glad you're big?*"

The answer to this question depends on your answer to certain others. "Big business" often gets the blame for many things, so that some people have come to feel that *bigness* itself may be bad. But in making up your own mind on this proposition, it's well to consider the *good* that comes from this same bigness.

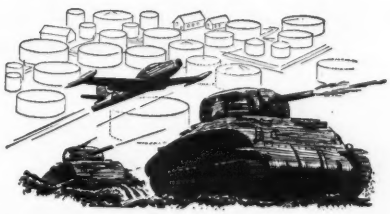


Do you like a bargain? You're getting one in gasoline. Except for taxes, gasoline today costs just about what it did in 1925. (And it's better gas; 2 gallons now do work that then took 3.) Why? Largely because of *competition* among big oil companies.



Are you glad you have the conveniences of this "machine age?" They depend heavily on oil. You're assured an ample supply of oil by the enterprise of big companies like Standard. We seek out new crude reserves, in this country and abroad, with exploration that may cost millions before the first gallon is found.

Do you like new and better things? Standard has spent over $35,000,000 on research and technical service in the last 5 years, developing new or improved products, and new raw materials for other companies. Yet only when allowed to grow big, by serving you better, can we take on the work and risk involved.



Do you want to keep your country strong? It takes big companies to back our fighting men and keep defense goods in full supply. Standard is at work for our government on aviation gasolines, atomic research, synthetic rubber, and other vital projects.

Obviously, there are countless ways to express the benefits you gain by our bigness . . . countless questions we could ask, to which you'd probably answer "yes" just as readily. And if you like the things that bigness brings, then you *can* be glad we're big.

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Montana

What may be the largest producer thus far brought in for the Williston Basin has been drilled by Shell Oil Co. in Dawson County. Production has come from the Devonian through perforations at 8908-46 feet and at 8968-9077 feet. At the higher level the well flowed 2200 barrels of oil per day through three-fourths inch choke and 388 barrels through 12/64 inch choke. Recovery of 750 barrels a day was made at the deeper level through three-fourths inch choke. Oil is of 38.5 gravity. The well is No. 34-26-G, nw sw se 26-15n-54e, Cedar Creek. Total depth is 9202 feet.

This is a northwest extension of The Texas Co. discovery, which also produced from the Devonian.

Shell was drilling below 6620 feet in its Little Beaver test, 13-4n-61e, Fallon County. A pint of black oil was recovered in a test at 6405-43 feet, and 308 feet of oil spotted mud.

Ajax Oil is drilling a tight hole at its wildcat, No. 1 McGowan, c se sw 10-29n-50e, West Poplar, Roosevelt County, but is reported to have recovered 1000 feet of 40 gravity oil on drill stem test of the Madison. There has been no confirmation.

Carter Oil Co. abandoned its West Poplar wildcat at c nw sw, 18-29n-50e, Roosevelt County. The well was drilled to 7675 feet, total depth, with no shows. It topped the Devonian at 7500 feet, Madison at 6080, Charles at 5680, Kibbey at 5355 and Amsden at 5052. This test was in the same township as Ajax's No. 1 McGowan but several miles west.

North Dakota

The Tioga Petroleum-M. B. Rudman-American Viking Math Iverson No. 1 recovered 30 barrels of oil per hour on test of the Madison at the 8470-90 foot interval after perforation. The well is a mile and a quarter south of Amerada's Clarence Iverson No. 1, discovery well in the Beaver Lodge Madison pool. The Math Iverson has recovered 60 and 25 barrels per hour below 11,000 feet. Rudman is the first independent operator to complete a producing well in the state. He holds 30,000 acres in the Beaver Lodge pool and on the Nesson anticline.

Stanolind Oil and Gas Co. was preparing to drill ahead below 7141 feet at its Long Lake Area, 28-150n-80w test in McLean County. Circulation was lost but later recovered.

Nebraska

Ohio Oil Co. was drilling below 2440 feet and was headed for the granite as the ultimate objective in its Mullin Area wildcat, 5-23n-31w, Hooker county. Operator recovered 1075 feet of water on drill stem test in the First Dakota at 2268-80 feet.

British-American abandoned its wildcat, 27-17n-52w, Cheyenne County, at total depth of 5535 feet. Service Drilling's wildcat, 5-9n-37w, Perkins County, also has been abandoned at a total depth of 3274 feet.

Northern New Mexico

In the first deep test between the Chimney Rock structure and the Hogback field in the San Juan Basin, The Texas Co. recovered gas from the Paradox formation. The well, No. 1-A Navajo-Tribal, c ne se 34-30n-17w, blew out 1000 million cubic feet of gas per day while operator was coring from 7055-7067 feet, total depth. The Paradox was topped at 6990 feet.

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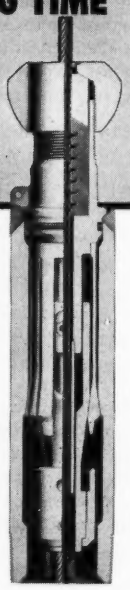

THE BOWEN AUTOMATIC LINE WIPER is an inexpensive tool that will quickly "pay out" its cost by increasing efficiency and reducing time spent on bailing or swabbing work. With this completely automatic unit you can . . .

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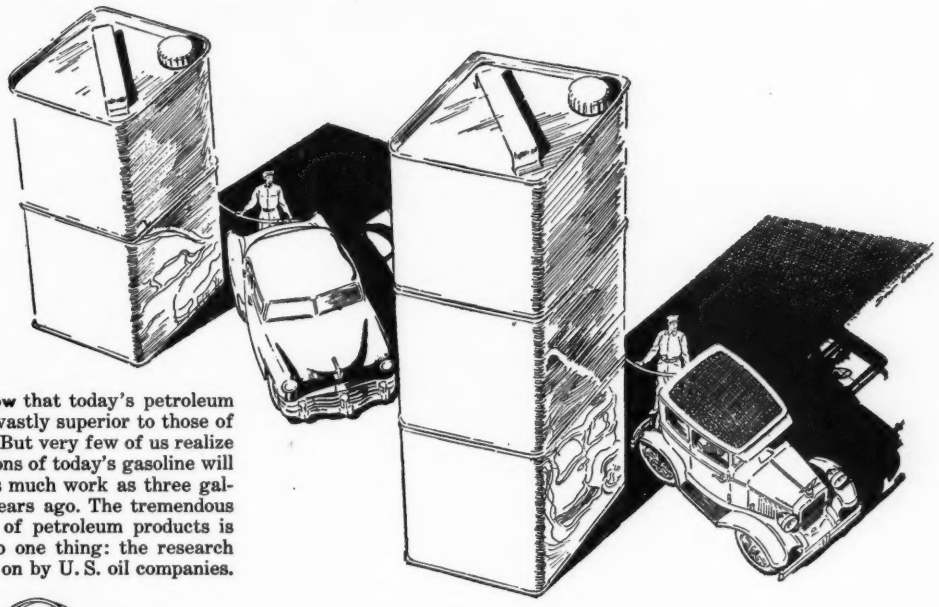
CASPER, WYOMING

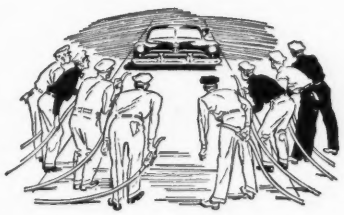
Why 2 gallons of the gasoline you buy today equal 3 gallons you bought in 1926



1. We all know that today's petroleum products are vastly superior to those of 26 years ago. But very few of us realize that two gallons of today's gasoline will actually do as much work as three gallons did 26 years ago. The tremendous improvement of petroleum products is largely due to one thing: the research being carried on by U. S. oil companies.

2. In February Union Oil opened its new $8 million Research Center near Los Angeles. Here a staff of 300 will work on product improvement as well as petrochemical research—the development of the base chemicals for such products as synthetic rubber, detergents and plastics.

3. Over the last 61 years the money we have spent per year on research has risen steadily from $3 thousand to over $3 million. Why? Not because we like to spend money or because someone told us we must. But *to keep ahead of our competitors*—all of whom are working on new and improved products too.



4. These 30,000 U. S. oil companies—big and little—are all competing with each other. Consequently, the *incentive* to develop new and improved products or techniques is constantly with all of us. This incentive is the driving force behind our whole free, competitive American system.

5. For it encourages the introduction of new and better products to a greater degree than could ever exist under a governmental monopoly.* As a result, the American people have the highest standard of living the human race has ever known.

**As long, that is, as the government doesn't tax industry to the point where there's no incentive left for research and development.*

UNION OIL COMPANY

OF CALIFORNIA

INCORPORATED IN CALIFORNIA, OCTOBER 17, 1890

This series, sponsored by the people of Union Oil Company, is dedicated to a discussion of how and why American business functions. We hope you'll feel free to send in any suggestions or criticisms you have to offer. Write: The President, Union Oil Company, Union Oil Building, Los Angeles 17, Calif.

Manufacturers of Royal Triton, the amazing purple motor oil

Field Development

Union Oil Company Clicks With Major Discovery At Torrey Canyon

Many years have rolled by since Ventura County recorded any oil strike comparable to that achieved by Union Oil Company with its Torrey No. 83 on Sec. 5-3n-18w in the old Torrey Canyon field.

Analyzed in every quarter of the production industry as a find of major proportions, the well was punched through 1500 ft. or more of Sespe oil formation in going to a total depth of 9327 ft.

As this is set down, the discovery well is pumping at the rate of 800 barrels daily of 19 gravity crude oil. That is not the whole story as the project shows a pronounced disposition to pump at almost any rate desired.

Union's discovery well is located on 30,000 acres of ground owned in fee and gives the company an entirely new oil province.

No time is being lost in developing the sensational field indicated by the start of Union's Torrey No. 84 approximately 660 ft. northeast of No. 83. Also preparing to drill is Simi No. 17 test, a stepout job about two an one-half miles southeasterly.

The well was designed originally to be taken down to a maximum depth of 7500 ft. to test the Eocene. However, it was taken on down when more Sespe oil sand was found than had been expected.

On bottom at 9327 ft. the bit was still in Sespe sand and because of the limited capacity of the rig drilling came to a halt at that level.

Highly significant is the fact that the productive Sespe sands improved with depth and that the zone is yet to be fully penetrated. Moreover, formations of Eocene geological age are yet to be explored and if found productive will constitute another prize for Union.

Texas Company holds approximately 1300 acres 3700 ft. west of the discovery between Torrey Canyon and Shiells Canyon. Oceanic Oil Company is represented in the area generally by 2200 acres about 4300 ft. north of the find.

Geologists for Texaco as yet have not disclosed their view as to chances of production similar to Union's on The Texas Company land. Oceanic's property to be developed along possible similar lines probably would call for inordinate deep drilling, according to consensus of fieldmen.

Union's strike is 40 miles northwest of Los Angeles in Santa Clara Valley.

In the Los Angeles Basin, Union has scored with an excellent completion in the Sansinena field in eastern Los Angeles County. There the company's Sansinena No. 49 on Sec. 29-2s-10w started off from 4443 ft. flowing at the rate of 1200 barrels of 24 gravity oil a day.

The company now has in the field more than 5000 barrels of oil daily from 32 wells producing and completed since development began two and one-half years ago.

Wheeler Ridge Holds Interest

Richfield Oil Corporation's recent Eocene discovery west of the Wheeler Ridge field, 25 miles south of Bakersfield, continues as the chief point of San Joaquin Valley oil interest.

The company's southwest offset well, KCL-D No. 76-29 on Sec. 29-11n-20w, is just about to spud at this writing, following remedial work on the KCL-D No. 85-29 discovery.

After controlling a gas leak that developed in the oil finder the company ran and cemented a 5½-in. protection string inside the 7-in. casing set at 9600 ft.

Full of meaning and import is the fact that the discovery after taking in 156 feet of oil sand to a total depth of 9756 ft. was still in this formation at bottom.

It is probable and in keeping with conventional development operations that the followup well will be taken down to determine the full extent of the sand body, which gives every sign of a copious supplier of crude oil.

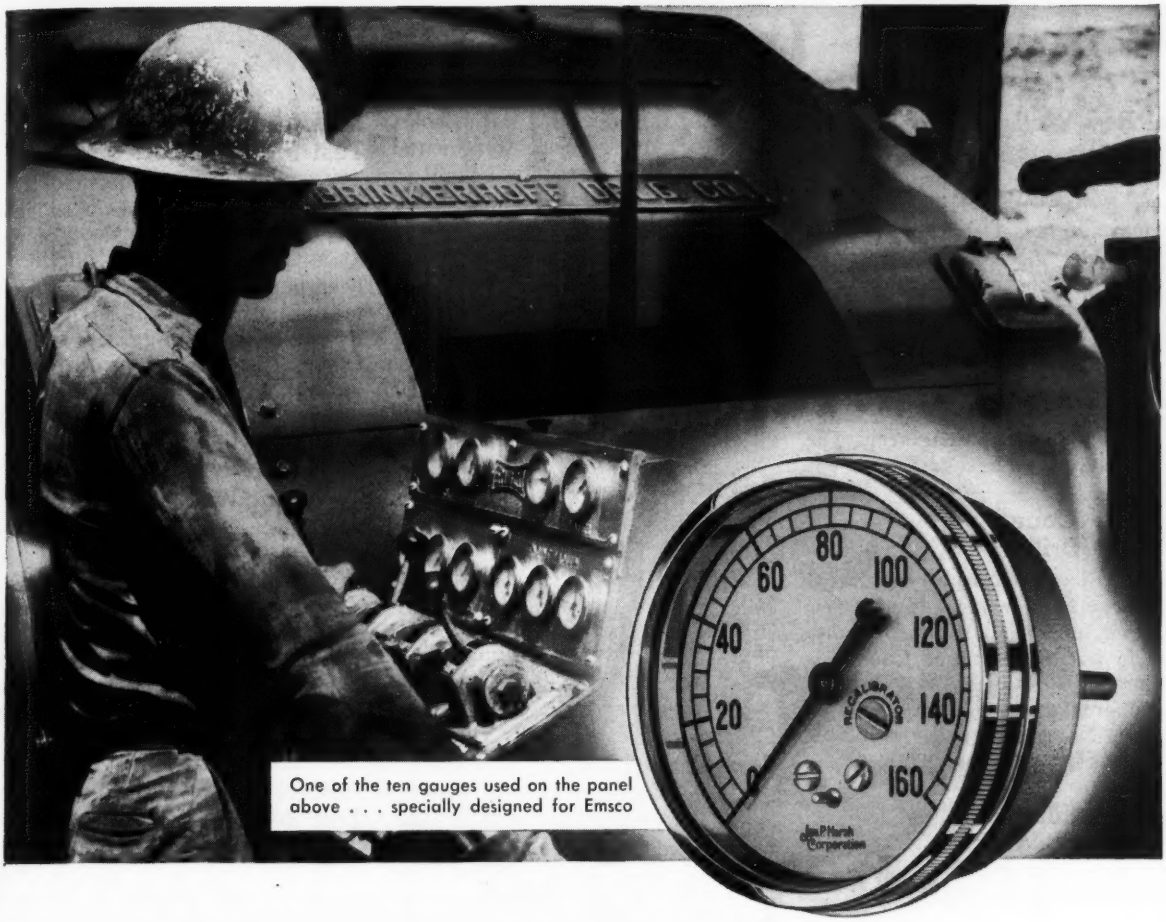
One of the immediate aftermaths of the Eocene find was the haste which operators in fields in southern San Joaquin Valley reviewed their holdings. Even in areas considered extremely remote to the Richfield discovery, operators were engaged in geologic rechecks.

Nearest lands to Richfield's 2,600-acre are owned by Tejon Ranch Company to the east. There Richfield has 27,000 acres under lease. Reserve Oil & Gas Company of San Francisco owns the extensive master lease on Tejon Ranch ground.

Richfield officials up to this time have not expressed an opinion as to the possible extent of the new field. Accurate delineation, however, will be revealed as additional drilling work progresses.

Cuyama Valley Test Drilling

Richfield Oil's Russell No. 42-34 test on Sec. 34A-11n-27w in the Cuyama Valley area in San Luis Obispo County is drilling at 4560 ft. North Basin Exploration's Whitney No. 1 on Sec. 9-11n-28w is idle temporarily at 325 ft. Likewise inactive is the J. F. Kosanke wildcat on Sec. 16a-11n-28w, named Kosanke & Shannon No. 1. In the Santa Barbara County part of the valley, Superior Oil Company is awaiting rig to start its Cuyama Government No. 1 explorer on Sec. 21-9n-26w.



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MARSH GAUGES

Los Angeles Basin

Del Rey Well Going Deeper

Bolsa Chica Oil Corporation is ready to deepen its Kidson No. 1-1 wildcat at Playa Del Rey for a test of possible oil sand below casing shoe on present bottom at 7418 ft. If nothing is promised by the deeper view, the operator probably will pull pipe, whipstock and redrill the project. Santa Fe Drilling Company is contractor. W. S. Payne, Jr., is the company's petroleum engineer. The derrick stands on Sec. 22-2s-15w.

Orange County Wildcat Drills

The Texas Company's Irvine NCT-One No. 1 wildcat test on Sec. 29-4s-8w, eight miles east of Santa Ana in northern Orange County is drilling below 867 ft. At Dixieland in Imperial County Texaco's F. D. Browne No. 1 test on Sec. 6-16s-12e is making hole below 5300 ft.

Castaic Hills Adds New Well

Dolley, Morton & Dolley have completed a good well in the Castaic Hills with their Doyle No. 1 on Sec. 36-5n-17w. The well, bottomed at 6217 ft., currently is putting out 280 barrels of 31 gravity oil a day through an 8/64-in choke. On the same section, Continental Oil Company's Harding No. 31-36 has started. Near by, Douglas Oil Company of California is drilling at 3657 ft. with its Douglas-Twomey No. 2. Drilling has reached 2500 ft. in the Indian Oil Company, Operator, Ament-Dunn No. 5. The project formerly flew the banner of Federal Oil Company. Richfield's Ament No. 14-36 continues to make hole ahead at 3104 ft.

Palmdale Test Drills

Antelope Valley's Palmdale area is the scene of a no dope hole being drilled by J. E. Willettee and known as Chief Paduke No. 1. The wildcat, on Sec. 24-5n-11w, is drilling below 600 ft.

Chatsworth Test Staked

Another wildcat test is making ready to begin drilling in the Chatsworth area. Sunray Oil Corporation has staked location for the well on Sec. 15-2n-16w. It is tagged Greenman No. 72-15. In the Newhall-Potrero area, Sunray Oil's RSF No. 103 on Sec. 34-4n-17w is drilling at 6550 ft.

Continental Oil Company's Phillips No. 2A in Whitney Canyon. Watkins Drilling Company, drilling contractor. Left to right: John Prewitt, driller; Joe D. Morgan, cathead; Fred Fellwock, racker and Russell Fulbright, derrick.

La Habra Heights Test Makes Good

With the interval from 4850 to 5288 ft. open, Universal Consolidated Oil Company's Curtis No. 1 on Sec. 31-2s-11w at La Habra Heights has been finaled and at last reports was putting out 100 barrels of 17.5 gravity oil daily through a 14/64-in. choke. Curtis No. 2 on the section is bent on clicking with duplicate production and is drilling at 830 ft.

Pico Canyon Test Inactive

Drilling was suspended at 9215 ft. in Los Nietos Company's Odeen No. 1 wildcat venture on Sec. 12-3n-17w in the Pico Canyon area, Los Angeles County. Keystone Oil Development Company's Hammon No. 3 on Sec. 8-3n-16w at Towsley Canyon at this writing was down 400 ft.

Placerita Test Begins

On Sec. 21-4n-15w, March Oil Company is about to spud its Boylan No. 1 test on ground about two and one-half miles northeast of the Placerita field. On Sec. 8-4n-15w, Ernest T. Wix is digging at 6000 ft. with Benz No. 1 venture. Jess Hooper is contract driller and Ross Cabeen & Associates, engineers.

Whitney Canyon Wildcat Testing

Redrilled to 1060 ft., Continental Oil Company's Phillips No. 2 wildcat on Sec. 6-3n-15w at Whitney Canyon is undergoing pumping tests. On the Paradise Ranch near Castaic, Daum Drilling Company is awaiting contractor to deepen Mary Austin No. 1 on Sec. 26-6n-17w to around 4000 ft. from present level of 3648 ft.

Bouquet Canyon Wildcat Working

Nothing would smell sweeter at Bouquet Canyon than good old crude oil. That is what Enterprise Oil Company is after with its Puckett No. 1 wildcat on Sec. 33-5n-15w, Los Angeles. The project is drilling at 1100 ft. according to the last infor-

mation. Contractor is Wells Drilling Company.

Canoga Park Try On Pump

On the pump for an undisclosed yield, W. J. McCarthy has given the final deft touch to his Frank Knapp No. 1 wildcat on Sec. 4-1n-17w at Canoga Park. About 600 ft. east Frank Knapp No. 2 is ready to drill.

Santa Fe Springs Wildcat Spuds In

An extension test well of the Santa Fe Springs area has been spudded in by Rothschild Oil Company on Sec. 5-3s-11w. The well, Tucker No. 1, is about 700 ft. north of Walker & Pray's Gauldin Comm. No. 1 producer.

In the Richfield area, Doc Rich Oil Company of Long Beach is ready to drill Meyer No. 1 on Sec. 33-3s-9w. An extension try, location is near the corner of Olive street and Richfield road. Dr. William Y. Lee is company president. Doc Exploration Company, which a year ago drilled a wildcat well in the San Juan Capistrano area, is a general partner.

Coyote Well Pumps Crude

Emery No. 91 well on Sec. 13-3s-11w in the West Coyote field has been finaled on the pump by Standard Oil at 5925 ft. for 155 barrels of 34.4 gravity oil a day.

Beach City Wells Begin

Among new drilling jobs in the Huntington Beach field are Holly Development Company's Turley No. 5 on Sec. 2-6s-11w and the Beloil Corporation, Ltd.'s Davenport No. 12 on the same section.

Jasmine Try Fails

Drilled to 1830 ft. in granite, Pacific Oil & Gas Development Company of San Francisco has pulled out of its Salca Boone No. 1 wildcat test on Sec. 1-25s-27e in the Jasmine area of Kern County. Top of the granitic rock there is 1825 ft.

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Madera County Wildcat Working

Chowchilla Gas Company has reached a depth of 2923 ft. with its Chowchilla No. 3 test well on Sec. 17-10s-14e in the Chowchilla area, Madera County. The operator is understood going no further with this hole, but will redrill. Sunray Oil Corporation's Chowchilla Farms No. 1 northeast of the town of Firebaugh is a location on Sec. 23-11s-14e.

River Island Test Drilling

A mile and one-quarter northeast of production in the River Island area, Brazos Oil & Gas Company is drilling at 1430 ft. with its Josephine Robinson No. 1 gas test on Sec. 9-4n-4e, Sacramento County. Standard Oil's Simms Comm. No. 1 gas hunter on Sec. 19-7n-5e in the Clarksburg area has reached 5800 ft. and is repairing equipment. Both wildcats are contract jobs with the famed Brown Drilling Company.

Athlone Try Digging Deeper

Near Athlone in Merced County, Shell Oil Company's Bliss No. 47X-19 wildcat venture is making rapid time with the drill below 1000 ft. Production success at this location would open a wide expanse of land to development.

East Islands Venture Quits

Following a final check with electric log, velocity survey and side wall sampling, Amerada Petroleum Corporation has pulled out of its G. & P. Core Hole No. 1 on Sec. 29-3n-5e at East Island, San Joaquin County.

Saticoy Test Starts Working

On the calendar for immediate drilling is General Petroleum Corporation's Hill-Converse No. 42-27 wildcat venture on Sec. 27-3n-21w in the Saticoy region of Ventura County. The derrick stands about three-quarters of a mile southwest of wells producing in the West Mountain field.

Holser Canyon Try Progressing

At Holser Canyon wildcat ground in Ventura County, Crestmont Oil's Holser No. 6 on Sec. 14-4n-18w is drilling at 4940 ft. In the Devils Canyon area, Continental Oil's McBurney-USL No. 1 test on Sec. 23-5n-18w is making hole at 1965 ft. At Tapo Canyon, Aeco Corporation's Tapo No. 2 wildcat on Sec. 13-3n-18w is idle at 1809 ft.

Capital Test Ready To Dig

Jeff Dye Drilling Company is ready to drill its Capital No. 1 test well on Sec. 34-5n-30w in the Capitan area, Santa Barbara County. The company is headed by Jeff Dye of Casper, Wyo. Company engineers are Ross Cabeen & Associates.

Harris Try Oil Failure

A depth of 9515 ft. was final depth of Union Oil Company's Harris No. A-2, an unsuccessful wilddcat test on Sec. 12-8n-34w in the Harris area, Santa Barbara County.

Ventura Avenue Well On Gas Lift

Lloyd Corporation, Ltd. is putting its new W. S. No. 2 test on Sec. 20-3n-22w in the Ventura Avenue area of Ventura County on the gas lift. The well is bottomed at 12,850 ft. On the Rancho Santa Ana, Superior Oil Company is drilling at 7170 ft. with its Chismahoo No. 1 wildcat on Sec. 9-4n-24w.

Piru Wildcat Drilling Ahead

On Sec. 34-4n-18w in the Piru area of Ventura County, Oceanic Oil Company's Oceanic-Marr-Sloan No. 1 explorer continues to dig ahead below 500 ft. Dunlap & Graham are contractors. At West Mountain, Los Nietos Company has suspended operations at 888 ft. with its Stewart No. 1 try on Sec. 24-5n-21w.

Santa Maria Wildcat Drills

Santa Maria's interesting wildcat well known as Careaga No. 1 and undertaken by Western Gulf Oil Company is drilling at 4000 ft. It is on Sec. 7-8n-33w, Santa Barbara County. On the Tinaquaic Rancho, Tide Water Associated' Oil's Laguna No. 1 is making hole at 6350 ft.

Stine, Sabasta and Ackland's Bailey No. 2 in the Placerita Field. Newhall Drilling Company, drilling contractor. Their crew on the job: Ben Blaine, driller; W. J. Gilbert, racker; Arch S. Jones, derrick and Jim Poe, lead tong.

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FIG. 2608

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Tepusquet Try Staked

At Tepusquet in Santa Barbara County, British American Oil Producing has location for its British American-Honolulu-Rancho Suey No. C-1 wildcat on Sec. 5-10n-32w. Honolulu is expected to start work at once on its Honolulu-Sunray-Sisquoc No. 1 test on Sec. 5-9n-31w at Sisquoc.

Santa Paula Well Finaled

F. Robert Reynolds' Jocko No. 1 well on Sec. 21-4n-21w at Santa Paula Creek in Ventura County has been completed at a plugged depth of 2369 ft. Total bottom is 2940 ft. Yield is yet to be accurately evaluated. A followup well is under consideration.

Simi Test Going Ahead

Pacific Western Oil Corporation's Pacific Western-Marr No. 1 wildcat at Simi in Ventura County is digging at 2640 ft. Thomas P. Pike is drilling contractor on the well, located on Sec. 36-3n-18w. The Texas Company is about to spud its Elkins No. 1 try on Sec. 7-3n-19w in the Bardsdale area.

Patterson Test Rigs

Shell Oil Company is nearing the spudding phase with its Elfers No. 36X-28 wildcat well in the Patterson area, Sec. 28-5s-7e, Stanislaus County. At Marysville Buttes in Sutter County, Richfield Oil has folded its tent and left Butte Comm. No. A-2 on Sec. 9-16n-2e. Nothing exciting was penetrated to a bottom of 4854 ft.

Ashley DeWitt of Los Angeles, leading contract driller and producer, calls attention to an old sale bill found by a farmer of Sikeston, Mo., which was published in 1849 and shows the marked changes in farm practice since that time. It read as follows:

"Having sold my farm and am leaving for Oregon Territory by ox team, will offer on March 1, 1849, all of my personal property, to-wit: All ox teams, except two teams, Buck and Ben and Tom and Jerry; two milch cows; 1 gray mare and colt; 2 ox carts; 1 iron plow, with scale boards; 800 feet of poplar weather boards; 1000 three-foot clapboards; 1500 feet fence rails; one 80-gallon soap kettle; 85 sugar troughs; 10 ballons of maple syrup; 2 spinning wheels; 30 pounds of mutton tallow; 20 pounds of beef tallow; 1 large broom made by Jerry Wilson; 300 poles; 100 split hoops; 100 empty barrels; one 32-gallon barrel of Johnson-Miller whiskey, 7 years old; 20 gallons of apple brandy; one 40-gallon copper still; four sides of oak tanned leather; 1 dozen real books; 2 handle hooks; 3 scythes and cradles; one dozen pitch forks; one-half interest in tan-yard; seven 32-calibre rifles; bullet molds and powder horn; rifle made by Ben Miller; 50 gallons of soft soap; hams, bacon and lard; 50 gallons of sorghum molasses; six head of foxhounds, all softmouthed except one.

"At the same I will sell my six Negro slaves—2 men, 35 and 50 years old; 2 boys, 12 and 18 years old; 2 mulatto wenches, 40 and 30 years old; will sell all together to same party, as will not separate them. Terms of sale, cash in hand, or note to draw 4 per cent interest with Bob McConnett as security. My home is on McConn's ferry pike. Sale will begin at 8 o'clock A.M. Plenty to eat and drink."

It is doubtless a far cry from petroleum to farming, but the difference in farming now and 100 years ago is worthy of note.

PRODUCTION WANTED

Lease of several acres preferred. Write, giving basic data to

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CALIFORNIA OIL WORLD

San Joaquin Valley

Poso Creek Well Working

Jack Yetman of Denver, Colo., as this was set down was drilling at 2900 ft. with his Fitzhugh-USL No. 1 well, one-quarter mile east of production in the McVan sector at Kern Front. The project is on Sec. 14-27s-27e and is being drilled on contract by Gene Reid Drilling Company. Vedder Petroleum Company opened production in the McVan pool about 30 years ago with its McVan No. 1 from 1235 ft.

Santos Creek Wildcat Drills

Approximately 660 ft. south and 1500 ft. east from the northwest corner of Sec. 4-29s-20e is the location of Independent Exploration Company's EP-USL No. 3 wildcat, which at last reports was going on down below 850 ft. Scott Bros. are contract drillers.

Mtn. View Well Flowing

Union Oil Company has clicked with a new producing well in the Mountain View area. It is Jewett Fee No. 83X-24, which started off from 6200 ft. at the rate of 1154 barrels of 36.5 gravity oil daily, along with 659,000 cubic ft. of gas a day.

Edison Groves Well Beginning

Eight miles east of Bakersfield in the Edison Groves field, Standard Oil's No. 86 well on Sec. 29-29s-29e has spudded. The well is drilling ahead in the relatively shallower formations toward the objective Olcese formation.

Edgar Folding Wildcat Digging

In the Edgar Anticline area, Hancock Oil Company's SMLC-Arnold No. 1 wildcat on Sec. 4-32s-19e, San Luis Obispo County is drilling at 2967 ft. On Carrizo Plains, Navy Oil Company's Navy No. 2, a wildcat well on Sec. 5-11n-26w, is digging at 4456 ft.

Continental Oil Company's Phillips No. 2A in Whitney Canyon. Watkins Drilling Company, drilling contractor. Left to right: Charles Fellwock, derrick; "Curly Tottes, driller; D. L. Kidd, cathead; Paul Riddle, lead tong and John Jones, pusher.

Tulare County Records Duster

Crude oil and natural gas eluded Continental Oil Company's Konda No. 1 in the Richgrove area and the wildcat has gone the way of all dusters at a depth of 2014 ft. Drilling was conducted on Sec. 26-24s-27e, Tulare County. In the Trico area, Harry H. Magee, Operator, is ready to deepen from present level of 11,460 ft. the H. C. Morris No. 1 test on Sec. 36-24s-23e.

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Ciervo Test Starts Drill

The Ciervo Anticline area of San Benito County has taken on new prospect interest with the spudding of Standard Oil's Nicholas No. 4 on Sec. 28-16s-12e. The project at last reports was making hole rapidly on down toward the surmised production targets. Nearing the spudding stage is Calzona Exploration Company's Calzona No. 1 wildcat on Sec. 8-17s-11e. In the Lonoak wildcat area, Standard is engaged in clean-out operations with its Eade No. 53-26 on Sec. 26-18s-9e. The well at present is down 6320 ft. The W. W. Holmes, Operator, Chamber No. 1 is a location in the area on Sec. 15-18s-9e.

Tejon Hills Wildcat Digs

J. F. Kosanke has spudded Last Chance No. 12 test. The project is no great distance south of Nels A. Madsen's Louise No. 1, which failed to find production to 1451 ft. and was subsequently abandoned in September 1951.

Temblor Hills Wildcat Quits

Wildcat efforts of Neaves Petroleum Developments of Beverly Hills in the Temblor Hills area of San Luis Obispo County failed to develop commercial production. The company's Neaves-Elkhorn No. 1 on Sec. 33-32s-22e was abandoned at 3780 ft. after a core near bottom indicated dips of as much as 80 degrees, evidence of faulting. Neaves holds some 1600 acres of ground in the vicinity of the duster and also owns interest in 3800 acres adjacent. Another well may be drilled at a location considered more favorable to production. The company is preparing to launch a well at Edison and another in the Wilmington field.

Vallecitos Try Suspended

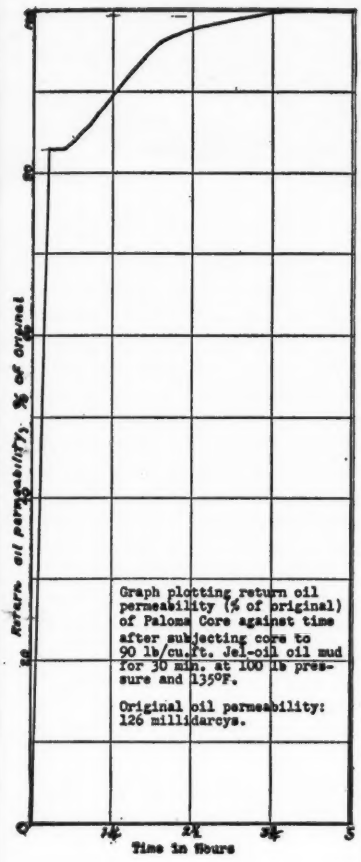
On the Vallecitos Anticline in San Benito County, Commercial Oil Company's McDonald No. 1 wildcat on Sec. 24-16s-10e suspended drilling temporarily at 2004 ft. On Sec. 6-17s-11e, Artnell Company has a location staked for its Frusetta No. 1 on the anticline.

Hanford Test Drilling Ahead

Not many miles southeast of Hanford, Standard Oil of California is drilling below 1200 ft. with its Mills No. 58-8 test well on Sec. 8-19s-22e, Kings County. The rig in operation is the one that was used in drilling the Hattie Russell No. 1 wildcat atop rugged Reyes Peak in Ventura County. Harry S. Sankey's Rockhold No. 1 is a wildcat location on Sec. 6-19s-23e.

Devils Den Wildcat Works

In the Dagney Gap sector northwest of production in the Devils Den field, M. J. M. & M. Oil Company of San Francisco is drilling at 815 ft. with its Alferitz No. 1 try on Sec. 10-25s-18e. At Devils Den, Elk Drilling Company's Elko-Strode No. 1 on Sec. 15-25s-18e is ready to drill ahead from 760 ft. following a temporary halt to repair equipment. Yellowstone Oil's Still-Mabury No. O-12-1 on Sec. 1-26s-18e has been finished at a bottom of 457 ft. Estimated yield is a dozen barrels of 13.5 gravity crude oil daily. The Oceanic was topped at 415 ft.


Return oil permeability, % of original
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Graph plotting return oil permeability (% of original) of Paloma Core against time after subjecting core to 90 lb/cu.ft. Jel-oil oil mud for 30 min. at 100 lb pressure and 135°F.
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Cymric Test Drills Ahead

At Cymric in Kern County, L. R. Wilhite was last reported drilling at 2340 ft. with his Della Williams No. 2 on Sec. 2-30s-21e. In the vicinity of Salt Creek, Ferguson & Bosworth have given the final touch to Richardson No. 2 on Sec. 18-29s-21e. The well went to 2781 ft. and then plugged back for completion at 1260 ft. for an initial output of 8 barrels of 15.5 gravity oil a day.

Poso Creek Test Quits

Bishop Oil Company's Movius No. B-2 on Sec. 4-28s-27e in the Poso Creek area of Kern County has been relegated to history at a depth of 2392 ft. in gray sand. The Etchegoin was topped at 2300 ft. North of Mount Poso, Walter De Courcy's De Courcy No. 1 is a location on Sec. 8-27s-28e.

Fruitvale Test Started

On property leased from Phillip Shellabarger southeast of the Fruitvale field, Standard of California has started work on its Shellabarger No. 48 on Sec. 30-29s-27e. Location is more than three miles southeast of the Humble pool at Rosedale. Prime objective is the Stevens oil sand zone. In the Buena Vista Hills,Standard is drilling below 1000 ft. with its No. 544-9D test on Sec. 9-32s-24e. Operations have been resumed at 5906 ft. with the company's Bergman No. 1, a wildcat on Sec. 5-27s-18e in Shale Hills.

FOR SALE

National 40 Drilling Rig Complete. 4,000 ft. 4½" drill pipe. Gardner-Denver Pump 7¾ x 12. Good condition. Write Box 303, c/o Calif. Oil World, 2404 W. 7th St., LA 5, Calif. tf

New Baash-Ross "UPS" Well Heads

Baash-Ross Tool Company, for many years a leader in the development and manufacture of advanced well head equipment, as well as many other well-known items of drilling and production equipment, has recently announced a new line of well head equipment that incorporates a number of unique features to increase the efficiencies of modern landing and casing head operations. Known as Type "UPS" Heads, this new equipment features a design in which the Packing Element and the Slips are combined into a single unitized assembly that simply wraps around the casing and is held in place by inserting one bolt.

The hinged design of the slip assembly assures a full-circumferential grip around the entire surface of the casing, with each of the individual slip segments setting at exactly the same height as every other segment. There is no risk of one slip setting higher or lower than the rest—no risk of crimped pipe or uneven support—no danger of the casing being suspended off-center in the body of the Head.

Unitized Construction Simplifies Installation

Inasmuch as the Packing Element is unitized with the hinged Slips into one coordinated assembly, installation of the entire "UPS" Head can be made very quickly without need for stripping the Packing and Slips over the casing or breaking any flow connections. The entire Assembly is simply wrapped around the casing, the bolt inserted, and the weight of the casing lowered on to the Slips. The packing is then expanded by merely tightening stud bolts around the upper face of the Assembly, the excess casing is cut off, and the job is done.

Many Important Advantages

The unique design of "UPS" Heads makes them ideal for a wide range of applications in medium and low pressure wells. They are unusually compact, since no space is wasted with threads, grooves or other packer-retaining devices within the bore of the body. Furthermore, the elimination of threads and grooves provides a smooth-surfaced bowl in which there is nothing to become damaged during drilling operations, no need for protective sleeves or other complicated accessory equipment.

Another safety feature — "UPS" Heads are so designed that each string of casing is separately landed and packed-off without placing accumulated weight on preceding strings or slip members.

Provides Weld-Test Feature

Also, according to the Manufacturer, another "UPS" advantage is the unique weld-testing feature originally pioneered on Baash-Ross Type "X" Heads—a feature that has proven extremely popular with operators under all types of field conditions. In this important Baash-Ross development, threaded outlets are connected to an annular space between the two casing welds to provide means for attaching a pressure pump and gauge so that the pressure-tightness of **both** welds can be tested simultaneously as soon as the welds are completed. Thus, any leaks discovered can be repaired immediately while the welder is still available at the rig. In addition, at any time throughout the life of the well, this same feature can be used for testing pressure-tightness, and should any leaks develop, they can be quickly sealed off by simply injecting plastic-pack material through the threaded opening.

These and other important "UPS" features mark this equipment as another significant Baash-Ross advancement in well head development. "UPS" Heads are available in a complete range of sizes . . . for either threading or welding to the casing . . . in "short" and "standard" heights . . . with or without integral Bases . . . and for use with over a dozen different tubing head suspensions and hook-ups. Complete details on new "UPS" Heads can be obtained by writing Baash-Ross Tool Company, 5512 Boyle Avenue, Los Angeles 54, California—or by contacting any of the Baash-Ross representatives located throughout the major oilfields of the United States.

Large illustration: Note overall compactness of Baash-Ross "UPS" Well Head Assembly. Lower view: Showing speed and simplicity of installing Unitized Packer and Slips.

Waukesha Motor Company Laboratory Ready in 1953

Ground has been broken for the new Experimental and Research Laboratory of the Waukesha Motor Company, and preliminary construction is under way. This new building, estimated to cost about $175,000.00 will be one story in height, and rectangular in shape, measuring 90 x 201 feet. The 18,000 square feet covered by this addition brings the total plant area under roof to over eighteen acres. Special interior construction and installation of facilities for the most modern experimental and research techniques for the further development of internal combustion engines and in related fields

will be included in this newest center of scientific research.

Many of the features used in most modern heavy duty industrial and truck engines have been discovered and developed by Waukesha engineers, and the steady growth in size and influence of the Company over the years imposes an increasing responsibility to maintain its position of leadership in engine and fuel experimentation and research.

Present plans call for the completion of the steel and brick structure in January, 1953, when much of the elaborate research equipment now used by the Motor Company will be transferred to this new laboratory. Many of the present laboratory facilities are now housed in buildings not designed primarily for research, and in some instances space is limited.

The laboratory will be located near the west end of the Motor Company property on St. Paul Avenue, in Waukesha, Wisconsin. No assembly production lines are scheduled in the building. Space in the present group of buildings formerly occupied by experimental and research facilities will be used for pattern storage, stock, and possible production areas.

New Steel Rotary Hose For Portable Oil Rigs Developed By Chiksan

An entirely new all-steel rotary hose unit designed specifically for portable rotary oil drilling rigs has been developed and successfully field tested by Chiksan Company.

The complete unit consists of a six-foot outrigger swivel arm bracketed securely to the mast leg and extending from the standpipe away from the derrick. This is designated a "Space-Saver." To this is attached a steel rotary hose incorporating ball-bearing swivel joints to permit complete flexibility and ease of operation in limited space. This in turn is connected to a drilling swivel extension which serves to increase the flexibility of the hose.

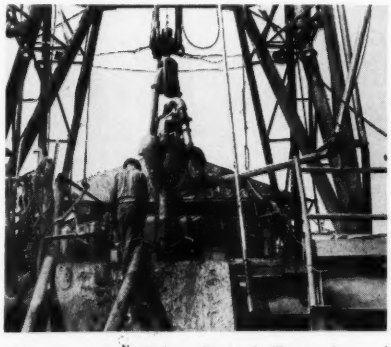
This new equipment was developed to overcome the problems encountered in drilling with portable rigs where working radius is small.

The steel rotary hose is available in two types. The PRQ rotary hose features quick disconnects at each ball-bearing swivel joint to facilitate easy replacement of worn-out joints without excessive shutdown time. The PR rotary hose is adapted with a quick disconnect union connection at one end of each swivel joint and a standard socket weld connection at the other end. Both types are designed and engineered for practical maintenance and are available in lengths to accommodate most portable masts. The new hose brings to the portable rotary rig all the advantages of all-metal hose with ball-bearing swivel joints. It will not kink or twist and it eliminates the possibility of a hose rupture causing loss of circulation or complete failure. It provides uniform strength and safety from standpipe to swivel. Higher pump pressures can be accommodated with the steel hose, and extreme climatic conditions will not affect it. Moreover, the steel hose can be folded compactly and safely for easy and rapid movement.

Although recommended for use as a complete unit, the Space-Saver and drilling swivel extension are available and can be used separately with ordinary rubber rotary hose. The advantages of the Space-Saver in this application lie in eliminating rubbing of the hose against the mast leg and in increasing the radius of bend, thus reducing wear and tear of the rubber hose due to abrasion and kinking. The Space-Saver can be transported without disassembling or removal from the mast.

When used in conjunction with the new drilling swivel extension, shorter lengths of hose are required and the cost of the hose is proportionately reduced. Important, too, is the fact that the derrick floor is kept free of hose with the kelly in any position.

The complete all-metal rotary hose unit has undergone rigorous testing on portable rigs under actual drilling conditions. According to the company, it has met with the enthusiastic approval of drilling operators using it. Definite savings not only in initial cost but in cost per foot of hole drilled over the conventional type of rotary hose are achieved, it is stated.



Closeup of Drilling Swivel Extension of Chiksan's new All-Steel Rotary Hose Unit on Santa Fe Drilling Company's Rig No. 9 in Southern California.

Now on a production basis at Chiksan's main plant in Brea, Calif., the equipment is available to domestic customers through the company's sales representatives in California and the Rocky Mountain area; the Well Equipment Mfg. Corp. in Texas, Louisiana, New Mexico, Kansas, Arkansas and Mississippi; and in Canada and other countries through Chiksan Export Co. in Brea, Calif. and Newark, New Jersey. It is also handled by leading supply companies in the United States and Canada.

Descriptive folder including engineering drawings is available upon request.

Rockwell Announces New Bulk Plant Meter

A new bulk plant meter, the Rotocycle 6 BLX, has recently been developed by Rockwell Manufacturing Company for liquid accounting of inventory withdrawals of aviation gasoline. This 6" rotary, positive displacement meter may also be used extensively on loading racks for measurement of refined petroleum and in chemical plants, lubricating oil plants and industrial proportioning operations.

Aluminum casings are available on the new meter to meet the increased demand for large meters of non-ferrous material. The aluminum is non-corrosive when metering high octane aviation gasoline, and its light weight facilitates handling and reduces shipping costs. A 6 BLX meter with an aluminum casing weighs only 207 pounds as compared to 417 pounds for cast steel and 400 pounds for cast iron. The new meter is designed for continuous operation at working pressures up to 125 psi and flow rates up to 650 gpm. At the maximum rated capacity of 650 gpm, the pressure drop across the meter on aviation gasoline is less than 2.2 psi and measurement is 99.95 percent accurate. The 6 BLX can be

mounted in a straight pipeline by employing two 45° ells.

Among the standard accessories are strainers, air eliminators, register extensions, swivel adapters and remote registration. This new Rockwell meter is available with non-reset, small reset, large reset and ticket printing registers. The non-reset register measures in gallons or barrels, the small reset registers in gallons only, and the large reset and printing registers in gallons, Imperial gallons, barrels, liters, pounds, etc.

For further details write Rockwell Manufacturing Company, 400 N. Lexington Avenue, Pittsburgh 8, Pa.

National Supply Announces New Rig

A new consolidated rig of sectionalized construction, for use with two torque converter equipped engines having a combined input rating of 550 horsepower, has been announced by The National Supply Co., Toledo, Ohio.

Known as the Ideal Type 55 Consolidated Rig, it will normally be used for drilling in the 5000 to 7500 foot depth range.

The sectionalized construction has afforded a number of design advantages, among them being the use of a large spooling drum, 22 inches in diameter and 49 inches long, grooved for use with 1⅛ inch wire line. This drum capacity permits usual hoisting operations with less than three full layers of line on the drum.

This construction also permits transportation of the drawworks and drive group in completely assembled, easily-handled packages, with no need to disturb the factory built alignment of shafts, controls, auxiliary brake, etc., when rigging up, tearing down, or moving the rig.

In addition to compound equalizing mechanical brakes, a choice is afforded of either a Hydromatic or Dynamatic auxiliary brake as optional equipment.

Drive groups are available for either high speed or medium speed engines with torque converter.

DRAWWORKS GENERAL

The frame and bearing support structure is rigidly mounted on a base 19 feet long and 8 feet wide, of 15-inch I-Beam weldex construction. This design makes possible the

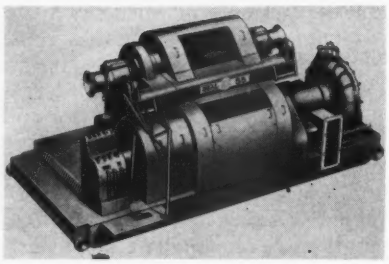


Fig. 1—The draw works of the Ideal Type 55 Consolidated Rig has a drum 22 inches in diameter and 49 inches long, and sectionalized construction makes transportation easy. This drum, grooved for 1⅛" wire line, permits usual hoisting operations with less than three full layers of line on the drum.

use of the long drum which characterizes the rig. Because the width is held within the 8 foot limit, the drawworks may be transported by truck in one piece.

Fully enclosed cascade lubrication is provided for all chain drives. Lubrication points are all outside and easily accessible, and there is subdeck accessibility to air lines, etc.

DRUM SHAFT ASSEMBLY

The exceptionally large drum capacity permits usual hoisting operations with less than three full layers of line on the drum, assuring the maximum wire line life and maximum spooling efficiency.

An Ideal Dy-A-Flex Air Clutch, 32 inches in diameter by 10 inches wide is mounted on the driller's end of the drum shaft, and outside the bearing support, to provide accessibility for servicing.

The drum hubs are supported on large upset sections of the shaft, providing increased strength and better water circulation. The brake rims, 42 inches in diameter by 8⅜ inches wide, are water cooled. Rims are of roll forged alloy steel, heat treated.

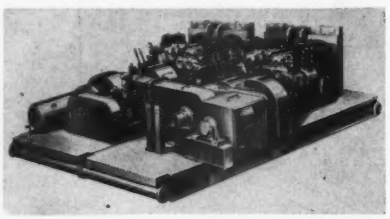


Fig. 2—Drive groups for the Ideal Type 55 Consolidated Rig are available for either high speed or medium speed engines with torque converters. Combined input rating is 550 horsepower. Designed by The National Supply Co., the rig will normally be used for drilling in the 5000 to 7500 foot depth range.

BRAKES

Type K-42 compound equalizing mechanical brakes are standard equipment. The Auxiliary brake, furnished optionally may be a 36 inch or 40 inch single Hydromatic or a Model 5019 Dynamatic. A gear tooth disengaging coupling makes it possible to disconnect either type of auxiliary brake when desired.

When a Hydromatic brake is selected, the drawworks is equipped with the new Ideal Type B Overrunning Clutch, mounted on the tapered end of the drum shaft. The clutch is connected to the splined brake shaft by means of the gear tooth coupling. It provides positive engagement of the Hydromatic brake when lowering drill pipe into the hole, but free wheels automatically when raising the empty blocks, permitting faster round trips with perfect safety.

THREE SPEED TRANSMISSION

Three mechanical speed changes (supplemented by the infinite speed variations through torque converter drives) provide ample speed variations for hoisting rotary machine and catheads. These speeds are selectively engaged by sliding gear tooth clutches in the two-shaft drawworks transmission.

Reverse gears are of the normally disengaged, lever operated, spur type. Transmission chains are 1¼ inch pitch double. A drum drive gear tooth clutch and sprocket, positioned on the jackshaft outside the transmission case, connects the 1¼ inch quad chain drive to the driller's end of the drum shaft.

ROTARY DRIVE

A rotary drive sprocket and a 20 inch Airflex Clutch, mounted on the jackshaft outside of the transmission case, connects the 1¼ inch pitch double chain drive direct to a rotary drive countershaft, mounted on the front edge of the drawworks. The rotary clutch is air controlled from the driller's cabinet.

CATHEADS

Ideal Type B-1 Air Catheads are mounted integrally with the catshaft, which extends through the catheads. Both the make-up and break-out catheads are of the friction clutch type, air operated, with air actuation itself contained within each cathead.

Modulating air valves permit the

driller, to exert pulls on tonging or spinning lines in any desired degree.

The catheads are closely coupled, with minimum overhang. Replacement of the lining is facilitated by its location on the outer end of the cathead, requiring only the removal of the spool.

SAND REEL

The sand reel, provided as optional equipment, is mounted on the catshaft. The sand reel drum, 14 inches in diameter by 43 inches long, has a spooling capacity of 12,500 feet of 9/16 inch line. A 24 inch Airflex Clutch, operated from the control cabinet, is mounted on the rotary end of the sand reel. The nested arrangement of the clutch mounting permits a compact and relatively short assembly.

Tretolite Issues New Booklet

Tretolite Company has just issued a new booklet describing the usage of Kontol as a corrosive preventative in refineries and gasoline plants.

The booklet is well illustrated with charts and tables and should prove of value to the personnel of refining and natural gasoline departments.

A copy may be had by writing to The Tretolite Company, 5515 Telegraph Road, Los Angeles 22, California.

Stine, Sabasta & Ackland's Bailey No. 2 in the Placerita Field. Drilling Contractor, Newhall Drilling Company. Left to right: Jim Poe, lead tong; Joel Brandon, racker; W. P. Andrews, driller and Tex Dennis, derrickman.

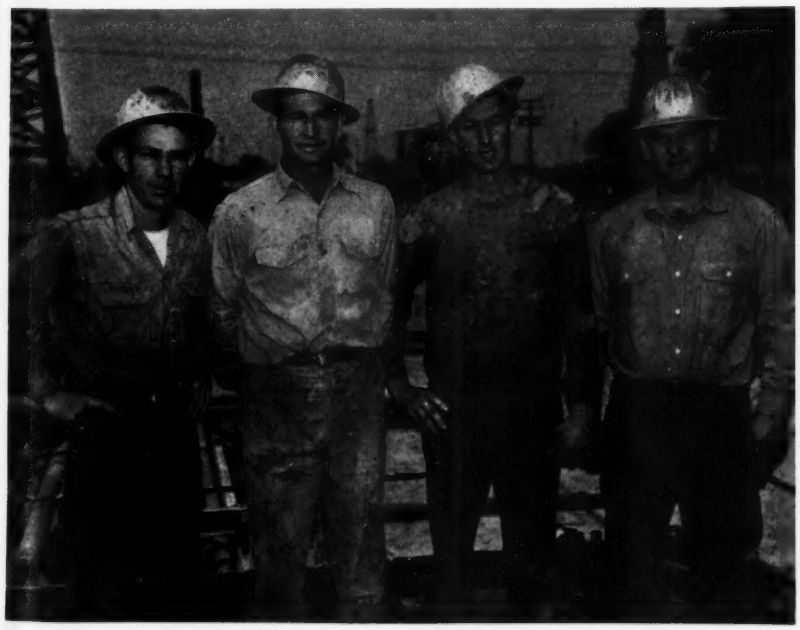
Oil Industry Portrayed In New Photographic Book

One of the nation's most important industries is pictured completely and dramatically for the first time in a photographic book, "The Oilmen," just published by Rinehart & Company. The petroleum business, which has been increasingly in the news in recent months, is portrayed

through 174 pictures of men and women at work, tied together by a brief, simple line of text.

The pictures were taken by Thomas Hollyman, consulting photography editor of **Holiday** magazine, on assignment for Shell Oil Company. They were made available to Rinehart & Company to tell the industry's story in picture-book form. The resulting volume, which is on sale through book stores, is entirely non-commercial.

Throughout "The Oilmen," from geologists in California and oil drilling Crews in Texas to a service station operator in New England, the photographs emphasize human drama while informing the reader about the background of the oil he uses every day.



Crown Drilling Company's Comm. No. 1 near Bakersfield. Left to right: Marvin Bailey, driller; C. B. Chaffin, derrick man; D. C. Griffeth, rotary and J. R. Simmons, cat head.

LAUGH

One upon a time a beautiful girl was walking through the woods when she came upon a poor little frog who spoke, "Lady, once upon a time I was a handsome prince, but a big black witch turned me into a frog."

"Oh, that's too bad," said the beautiful girl. "Is there anything I can do to help you?"

"Yes, indeed," replied the frog. "If you will take me on your pillow I will be saved."

So the beautiful girl took the poor little frog home, and the next morning when she awoke, there beside her was a handsome young prince.

And, do you know, to this day her mother still doesn't believe that story.

At the dinner party, he was giving a hammy impersonation of a devoted husband. Among other things, he told his wife that she was not to sit around and mope if he died, but should go out and enjoy life. And marry again if the right man came along.

"Don't be morbid," his wife scoffed, but he persisted.

"And another thing," he urged in clarion tones that all present could hear, "don't wear mourning for me —not for a single day!"

"Of course I won't, Henry," she agreed. "I tried on black last winter when you were so ill, and it made me look ten years older!"

It's easy enough to be pleasant,
With a lass and a glass and a song;
But the man worth while
Is the guy who can smile
When he has the old woman along!

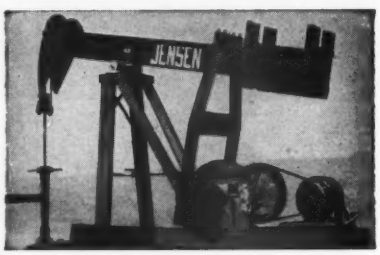
Prospect (being given demonstration in used car): "What makes it jerk so when you first put it into gear?"

Salesman: 'Oh, that proves it to be a good car. It's anxious to get started."

THIS

Junior was one of those little terrors and Mama was surprised when Papa bought him a bicycle for Christmas. "Do you think it will improve his behavior?" she asked.

"No," replied Papa grimly, "but it will spread his meaness over a wider area."



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OFF!!

Then there's the guy who calls his girl friend the "salt of the earth." He's been trying to shake her for years.

A man teacher in high school had several smart-Alec boys in his room. While he was out of the room one of the boys drew the likeness of a jackass on his coat with chalk.

When he returned to the room and saw the coat he sat reflectively for a time, apparently deep in thought.

"I've been wondering for several minutes but I can't make up my mind for sure which one of you boys wiped his face on my coat while I was out of the room."

"I know a place where women don't wear anything — except maybe a string of beads once in a while."

"Holy Gee, where?"

"Around their necks, stupid."

Smith: "How do you like the new secretary your wife engaged for you?"

Jones: "Not so good."

Smith: 'Oh? Is she a blonde or brunette?"

Jones: "He's bald."

If you think that "old soldiers just fade away," try squeezing into a pair of GI trousers and the blouse you wore in the last war.

"And another thing," shouted Mr. Buller, "you led me to believe that you were a young chick when we were courting, you old hen."

"Well, you've certainly got to give me credit for getting a worm," she retorted.

"That's funny," said the dentist who had been drilling and drilling and drilling. "You said this tooth has never been filled and yet there are flakes of gold on the point of my drill."

"I knew it, I knew it!" groaned the patient. "You have struck my gold belt buckle."